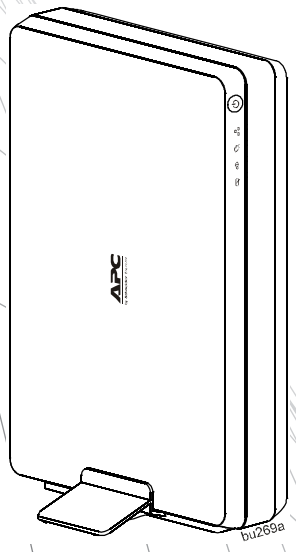
by Schneider Electric

Operation Manual

Back-UPS™ Pro

Uninterruptible Power Supply

BG500 120 Vac



Overview

Product Description

The APC™ by Schneider Electric Back-UPS™ Pro BG500 is a high performance Lithium Ion uninterruptible power supply (UPS). It provides protection for electronic equipment from AC power blackouts, brownouts, sags, and surges, small AC fluctuations and large disturbances. The UPS also provides battery backup power for connected equipment until AC power returns to safe levels or the batteries are fully discharged.

Safety and General Information

Inspect the package contents upon receipt. Notify the carrier and dealer if there is any damage.

Read the Safety Guide supplied with this unit before installing the UPS.

- This UPS is intended for indoor use only.
- Do not operate this UPS in direct sunlight, in contact with fluids, or where there is excessive dust or humidity.
- The battery typically lasts for six to ten years. Environmental factors impact battery life. Elevated ambient temperatures, poor quality AC power, and frequent short duration discharges will shorten battery life.
- Connect the UPS power cable directly to a wall outlet. Do not use surge protectors or extension cords.
- Before installing or replacing the batteries, remove jewelry such as wrist watches and rings. High short circuit current through conductive materials could cause severe burns.

Specifications

For additional specifications, refer to the APC by Schneider Electric Web site at www.apc.com.

Model	BG500
VA	500 VA
Maximum Load	300 W
Nominal Input Voltage	120 Vac
Green Standard Mode Power Consumption	0.86 W
Online Input Voltage Range	Default Setting: 92 V - 139 V Low Sensitivity Setting: 88 V - 142V High Sensitivity Setting: 96 V - 136 V
Frequency Range	50 Hz - 60 Hz auto sensing
Total Amperage (all outlets)	4.2 A (including UPS output)
Voltage - On Battery	115 Vrms ± 8% quasi sine wave
Frequency - On Battery	50 Hz/60 Hz ± 1 Hz
Typical Recharge Time	12 hours
Transfer Time	10 ms, maximum
Operating Temperature	10° to 40°C (50° to 104°F)
Storage Temperature	-15° to 45°C (5° to 113°F)
Unit Dimensions	29 × 19.1 x 5.4 cm (11.42 × 7.52 x 2.13 in)

Unit Weight	2.2 kg (4.85 lbs)
Interface	Web page
On Battery Runtime	Go to: www.apc.com
Battery Capacity	2.3 Ah
Battery Voltage	13.2 V typical
Battery Output Current	40A continuous
Battery Weight	0.53 kg (1.17 lbs)
Battery Dimensions	7.74 x 15.23 x 4.16 cm (3.05 x 6 x 1.64 in)
Supported OS	Windows XP, Windows Vista, Windows 7, Windows 8 and Mac OS X (USB) Windows XP, Windows Vista, Windows 7 (software)
EMI Compliance	This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: – Reorient or relocate the receiving antenna. – Increase the separation between the equipment and receiver. – Connect the equipment into an outlet on a circuit different from that to which the receiver is connected. – Consult the dealer or an experienced radio/TV technician for help. **Notice:** This device complies with part 68 and part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation. “Locate the label on the bottom of this device that contains, among other information, the FCC registration number and ringer equivalence number (REN) for this device. If requested, this information must be provided to the telephone company.”
USB Compliance	USB-If Basic Speed

Battery Replacement

Always recycle used batteries.
For information on recycling a used battery, refer to the Battery Disposal Information sheet included with the replacement battery.

Replace used batteries with APC approved batteries. To order a replacement battery go to the APC by Schneider Electric Web site, www.apc.com.

UPS Model	Replacement Battery
BG500	APCRBC146-LI

Lithium Ion Battery Safety Information

This product uses a lithium ion battery.

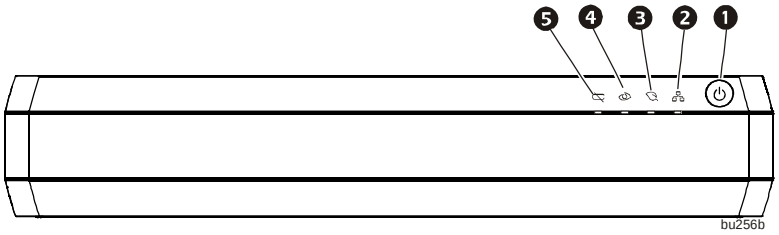
The following safety rules must be followed when shipping the battery by air transportation.

1. Disconnect the battery and remove it from the UPS.
2. Do not pack more than two batteries in the same box.
3. Place the lithium ion battery handling label with power rating in watts, on the box if two batteries are packaged in one box. Detailed battery specifications are listed above.
4. The following information must be included on the Air Waybill:
    a. Lithium ion batteries or cells, NOT RESTRICTED as per PI966 Part 1.
    b. Handle the package with care!
    Damage to the batteries can cause a fire hazard or the batteries may short circuit.
    c. Contact telephone number
5. Contact the air cargo company for more detailed shipping information.

Operation

Product Overview

Front panel features



❶		**Power On/Off button - The Back-UPS is supplying conditioned AC power to connected equipment**
❷		**Network Status - The Back-UPS is connected to the Ethernet network.**
❸		**Energy Management - Master and Smart outlets are enabled, saving power when the master device goes into sleep or standby mode**
❹		**Watchdog - The Watchdog function is enabled on one or both Smart outlets**
❺		**Replace Battery - The battery is not connected or is nearing the end of its useful life. Replace the battery.**

Rear panel features

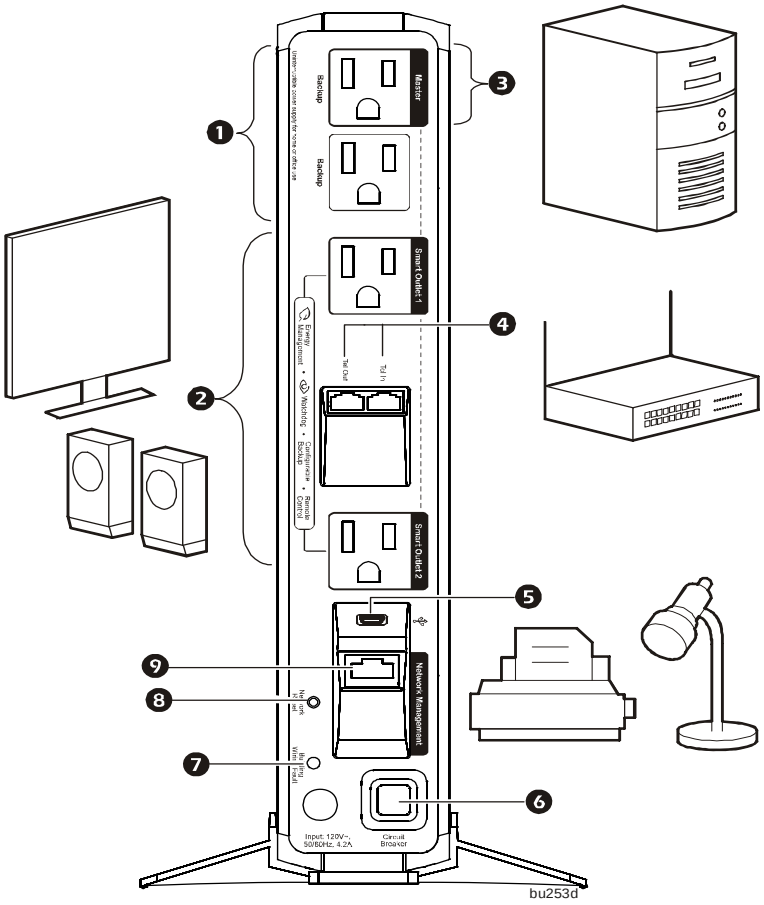
❶ **Backup Outlets** These outlets provide full-time surge protection for connected equipment from power surges even when the Back-UPS is turned off. Both outlets also have full time battery backup.

❷ **Smart Outlets** These outlets also provide full-time surge protection for connected devices. Smart Outlets are remotely manageable and can configurable.

•**Energy Management**: To conserve energy the Smart outlet 1 and 2 will disconnect from AC power whenever the device plugged into the MASTER outlet is turned off or goes into Standby or Hibernation mode. Connect a printer, scanner or other noncritical devices that do not require battery backup protection.

•**Watchdog**: The Watchdog feature automatically restarts networking gear when a loss of internet connectivity is detected. Suggested devices for connection to Smart Outlet 1 is a modem, and a wireless router for Smart Outlet 2. Combined wireless modem and router should be plugged into Outlet 1. The UPS will ping the configured remote IP address and if there is a failure for the duration of the test interval, the UPS will reboot the devices plugged into the Smart Outlets sequentially.

•**Configurable Backup:** These configurable outlets can be configured as “Yes” or “No” in the device's web interface. When set to “No”, these configurable outlets do not provide battery backup to connected equipment. Connect a printer, scanner or other noncritical devices that do not require battery backup protection.



❸	**Master outlet**	Connect the master device to this outlet, in most cases, this will be the main computer. In addition to providing battery backup power and surge protection, this outlet will signal the Smart outlet to disconnect from AC power when the master device is either turned off or goes into Standby, Sleep, or Hibernation mode.
❹	**Telephone Surge Protection**	The Back-UPS protects equipment connected to a telephone line from power surges when connected through the Back-UPS telephone cable connectors.
❺	**Mini USB port**	Use to connect the system to the desktop PC in order to monitor the Back-UPS battery condition.
❻	**Circuit breaker**	Use to reset the system after an overload condition has occurred causing the circuit breaker to trip
❼	**Building Wiring Fault indicator**	The LED illuminates when there is no ground circuit, a neutral overload, or there is a reversed polarity in the building wiring. Protection is not guaranteed when the LED is illuminated. Have a qualified electrician correct the building wiring.
❽	**Network Reset button**	Use to reset UPS by pressing for more than 20 seconds, all network configuration and login information will be set to factory default when pressed for less than 20 seconds, it will reboot the network connection.
❾	**Network Management port**	Use an Ethernet cable to connect a computer, modem or a router to this port. This port allows for the UPS to be managed remotely via a web based user interface.

Installation

UPS

For UPS installation instructions, refer to the Back-UPS Pro BG500 Installation Guide that is supplied with the UPS. The guide is also available on the enclosed User Manual CD and the APC by Schneider Electric Web, site at www.apc.com.

Energy Management

Energy Management function can be used to automatically reduce energy consumption. Plug your computer into the Master outlet, and when it is turned OFF or goes into “sleep”, “standby”, “hibernation” mode, any peripherals plugged into the Smart Outlets like speakers, scanners, modem, router or printers, will also shut off automatically, eliminating needless electricity waste.

Notes: The Back-UPS ships with this Energy Management feature DISABLED. If you wish to use this feature, follow the instructions below.

Enable and Disable the Energy Management function. The Energy Management function of the Back-UPS can be toggled between Enable and Disable through the Web page. Once enabled, the leaf indicator on the front panel will illuminate and extinguish once disabled. Refer to the "Web based Management Interface" on page 22 for instructions on how to access the Web page.

Watchdog Introduction

The Watchdog function is a feature for monitoring network equipment and automatically rebooting it when it looses connectivity to the internet. In many cases when networking equipment loses connectivity a quick reboot is usually the fastest way to resolve the issue. With the BG500 this can be done automatically. The way it works is simple. Connect BG500 to your internet router using an Ethernet cable. Plug both your modem and wireless router to the Smart Outlets on the Back-UPS Pro. When configured properly the Back-UPS Pro will ping an IP address outside your network on the internet. When the Back-UPS Pro is not able to connect to that IP address it will reboot the modem and the router in an attempt to resolve the problem. No further user intervention is required. For more details follow the instructions in the Watchdog Settings on page 38 of this manual.

Connect Equipment

Connect a master device, such as a desktop computer or audio/visual receiver to the Master outlet. Connect peripheral devices such as a printer, speakers, or a scanner to the Smart Outlets.

Other required installations for the Back-UPS to function properly include Ethernet cable connection, Telephone Protection In/Out connection, and battery pack installation.

Note: The UPS will charge to 90% capacity in the first three hours of normal operation. **Do not expect full battery runtime capability during this initial charge period.**

1. Connect equipment to the outlets on the rear panel of the UPS.
   Refer to "Smart Outlets" on page 20.
2. Connect the UPS to the building AC power. **Connect the UPS to a two-pole, three-wire, grounded source only.**
3. To use the UPS as a MASTER ON/OFF switch, turn on equipment that is connected to the UPS.
4. To turn on the UPS and all connected equipment. Press the ON/OFF button on the front panel of the UPS.
5. Follow the prompts to configure the UPS using the set up wizard the first time the UPS is turned on. Refer to "Network Quick Configuration" on page 22.

Backup and Smart outlets

When the Back-UPS is receiving input power, all outlets, Master, Backup and both Smart Outlets will supply power to connected equipment.

During a power outage or other AC problems, all outlets should be supplying backup power to each outlet. Smart Outlets can be configured to turn off outlets or be configured to be surge only. Here are the scenarios where a Smart Outlet is not supplying backup power or is off.

a. User has remotely turned off Smart Outlet

b. Energy Management has been enabled and the load on the Master Outlet is below the threshold where Energy Managed Smart Outlets are turned off.

c. The Watchdog feature has been enabled and a loss of network connectivity has been detected and the Smart Outlet is temporarily off as part of the reboot process.

d. The Smart Outlet has been configured to not provide Backup power and is in a surge only configuration.

Connecting the UPS by USB

By connecting the UPS to a computer by USB the operating system (Windows XP, Vista, 7, and 8 and Mac OS X) is able to view the UPS as a battery and is able to display charge capacity and charge state (on AC or on battery). Use the included cable to connect the USB cable on the back of the unit to an standard Type A USB port. The system should recognize the battery automatically. No additional software is needed. If the system previously had PowerChute Personal Edition (PCPE) installed there may be some driver conflict and users may have to make adjustments to the system in order for the operating system to properly recognize the UPS

Connecting by OS

Mac OS X

Turn on the UPS, connect the UPS to the Mac computer using the supplied USB cable.

1.Click System Preferences icon along the Dock.

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Click Energy Saver icon, you should see a UPS tab displayed in the dialog.

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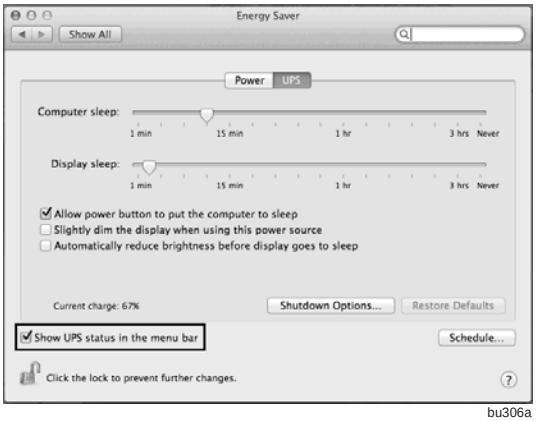

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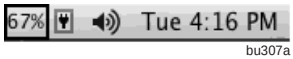

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Click UPS tab, check Show UPS status in the menu bar option. The Mac OS X will then display a UPS icon in the menu bar.

Windows 7

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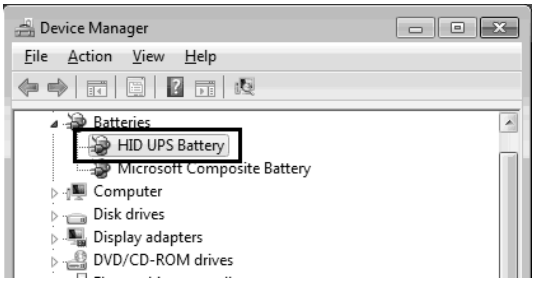

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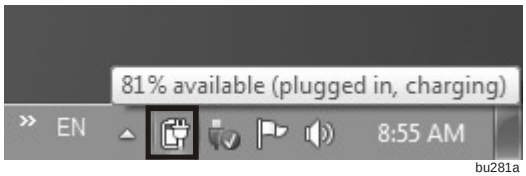
Turn on UPS and connect UPS to the Windows 7 computer via a USB cable. Click Start --> Control Panel --> Hardware and Sound. Under Devices and Printers group, click Device Manager. In the Device Manager window the UPS is listed as a HID UPS Battery device.



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If the UPS is installed as a HID UPS Battery device, Windows 7 will display an UPS icon in the taskbar.

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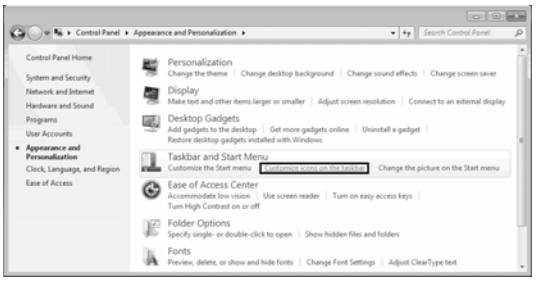

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If the UPS is listed as an APC UPS Device. refer to step 3 in updating the device driver into HID UPS Battery. Otherwise proceed to step 4.

❸ **Updating the driver from APC UPS to HID UPS Battery**

3.1 If device manager shows APC UPS device or APC Battery BackUP and in Power Options you cannot configure the system to shutdown when the UPS is on battery (Figures A - C) you have 2 options. 1 is to roll the driver back to HID UPS (Figures D, E and K) or 2 is to update the driver to HID UPS (Figures F - K)

As you see when APC UPS (figure A) or APC Battery BackUP (Figure B) are the loaded driver under Power Options (Figure C) there is no availability to configure shutdown while on battery.

Figure A

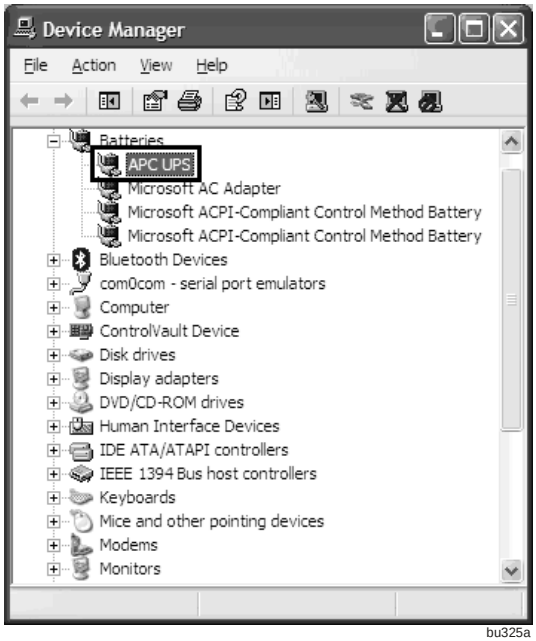

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Figure B

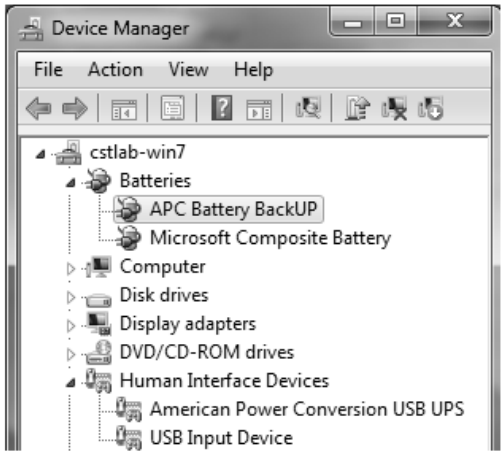

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Figure C

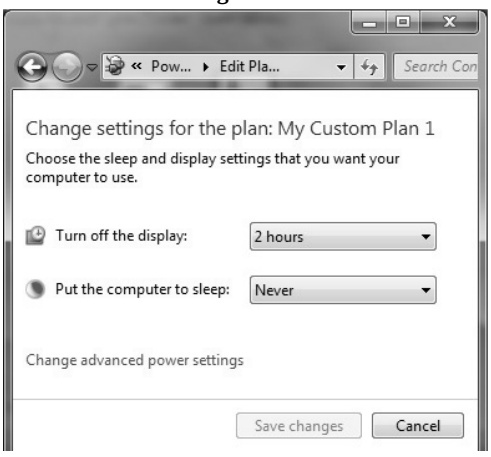
Change settings for the plan: My Custom Plan 1
Choose the sleep and display settings that you want your computer to use.
Turn off the display:
2 hours
Put the computer to sleep:
Never
Change advanced power settings
Save changes
Cancel

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Figure D

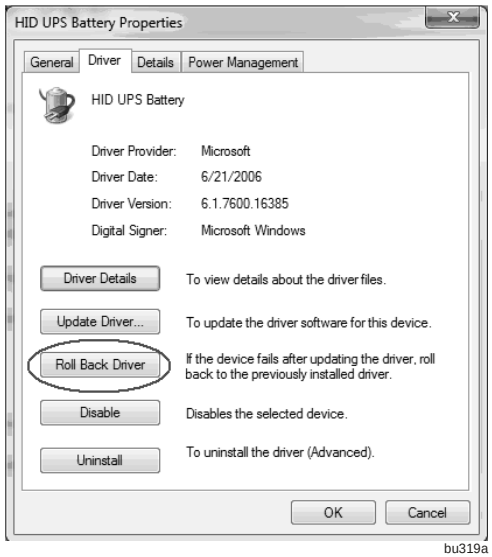

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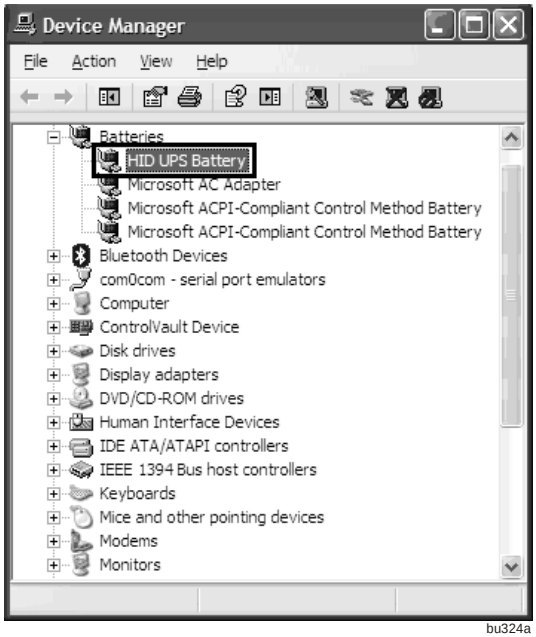
Figure E



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3.2 Option 1 - To roll the driver back: Go to Control Panel – Device Manager – Batteries – Select the APC UPS or APC Battery BackUP – Select Driver tab – select Roll Back Driver. The Driver will revert to HID UPS (Figures D & E).

Figure F

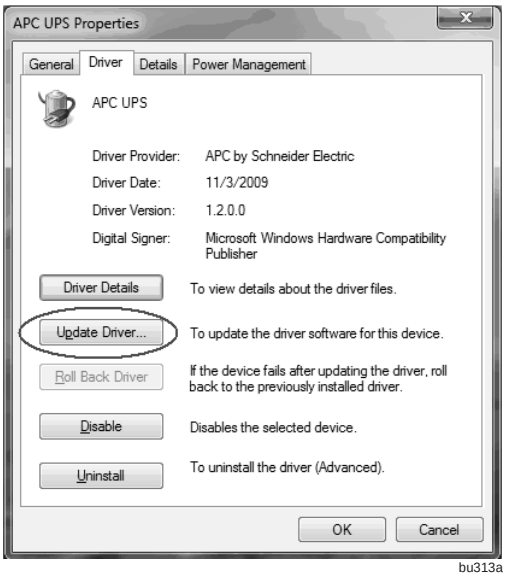

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Figure G

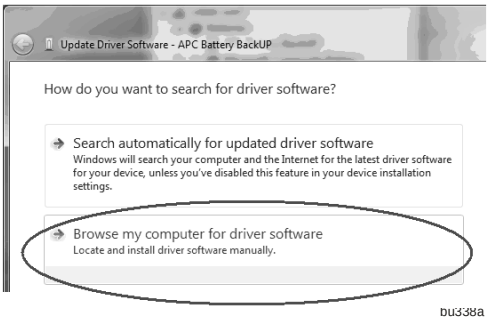
Update Driver Software - APC Battery BackUP
How do you want to search for driver software?
Search automatically for updated driver software
Windows will search your computer and the Internet for the latest driver software for your device, unless you've disabled this feature in your device installation settings.
Browse my computer for driver software
Locate and install driver software manually.

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Figure H

Update Driver Software - APC Battery BackUP
Browse for driver software on your computer
Search for driver software in this location:
Browse...
Include subfolders
Let me pick from a list of device drivers on my computer
This list will show installed driver software compatible with the device, and all driver software in the same category as the device.
Next
Cancel

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3.3 Option 2 – If you cannot roll the driver back (roll back is grayed out) select Update Driver (Figure F) – Browse my Computer for Driver Software (Figure G) – Select Let me Pick from List of Device Driver on my Computer (Figure H) select HID UPS from list (Figure I)

Figure I

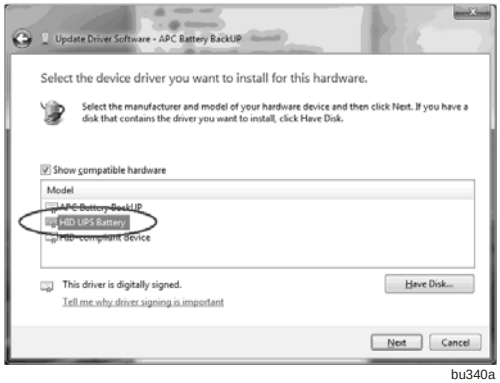
Update Driver Software - APC Battery BackUP
Select the device driver you want to install for this hardware.
Select the manufacturer and model of your hardware device and then click Next. If you have a disk that contains the driver you want to install, click Have Disk.
Show compatible hardware
Model
APC Battery BackUP
HID UPS Battery
HID-compliant device
This driver is digitally signed.
Tell me why driver signing is important
Have Disk...
Next
Cancel

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Figure J

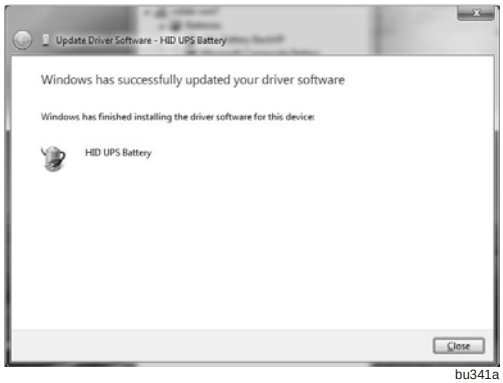
Update Driver Software - HID UPS Battery
Windows has successfully updated your driver software
Windows has finished installing the driver software for this device:
HID UPS Battery
Close

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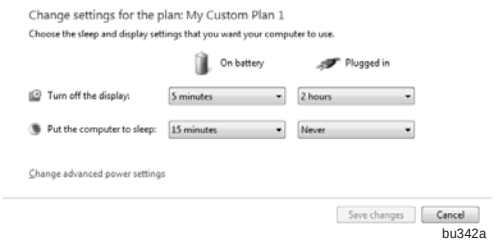
Figure K



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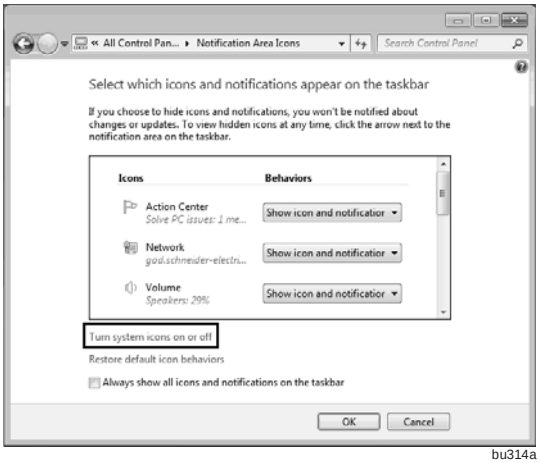
3.4 You can now configure Power Options to shutdown when UPS is on Battery.

❹ If the battery icon is not displayed in the system tray, click Control Panel, click Appearance and Personalization. Under the Taskbar and Start Menu group click Customize icons on the taskbar.


All Control Pan... ▸ Notification Area Icons
Search Control Panel
Select which icons and notifications appear on the taskbar
If you choose to hide icons and notifications, you won't be notified about changes or updates. To view hidden icons at any time, click the arrow next to the notification area on the taskbar.
Icons
Behaviors
Action Center
Solve PC issues: 1 me...
Show icon and notificatior
Network
gad.schneider-electri...
Show icon and notificatior
Volume
Speakers: 29%
Show icon and notificatior
Turn system icons on or off
Restore default icon behaviors
Always show all icons and notifications on the taskbar
OK
Cancel

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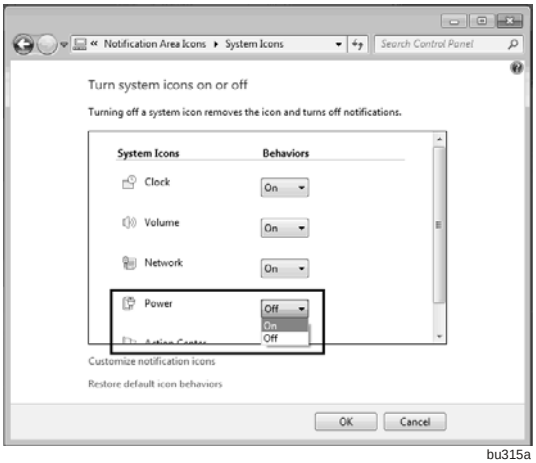
Then click Turn system icons on or off.

❺



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Click the dropdown box for the Power system icon, select On from the list. Now Windows should display the battery icon in the system tray

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Windows XP

1.Turn on UPS and connect UPS to the Windows XP computer via a USB cable.

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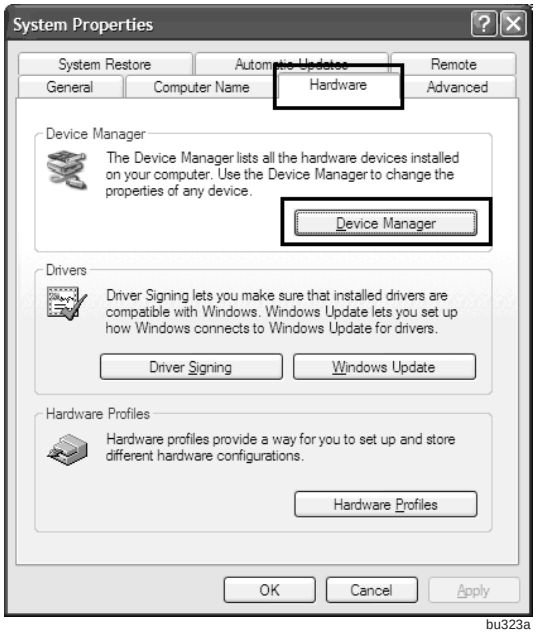
System Properties
System Restore
Automatic Updates
Remote
General
Computer Name
Hardware
Advanced
Device Manager
The Device Manager lists all the hardware devices installed on your computer. Use the Device Manager to change the properties of any device.
Device Manager
Drivers
Driver Signing lets you make sure that installed drivers are compatible with Windows. Windows Update lets you set up how Windows connects to Windows Update for drivers.
Driver Signing
Windows Update
Hardware Profiles
Hardware profiles provide a way for you to set up and store different hardware configurations.
Hardware Profiles
OK
Cancel
Apply

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Click Start --> Setting --> Control Panel --> System. In the System Properties window click the Hardware tab, then click Hardware Manager button.

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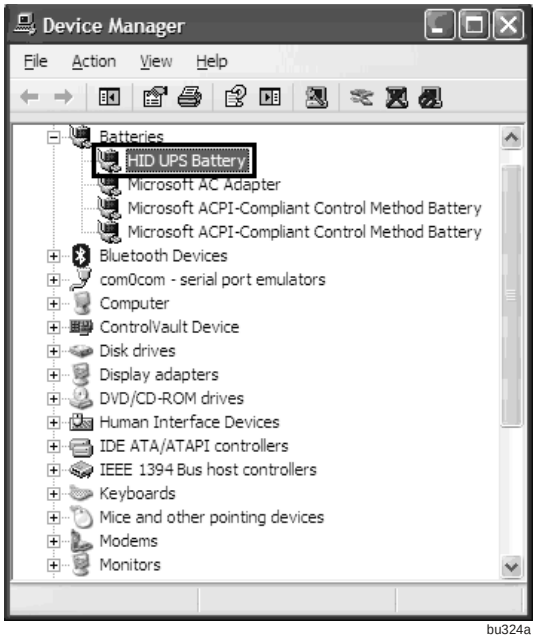

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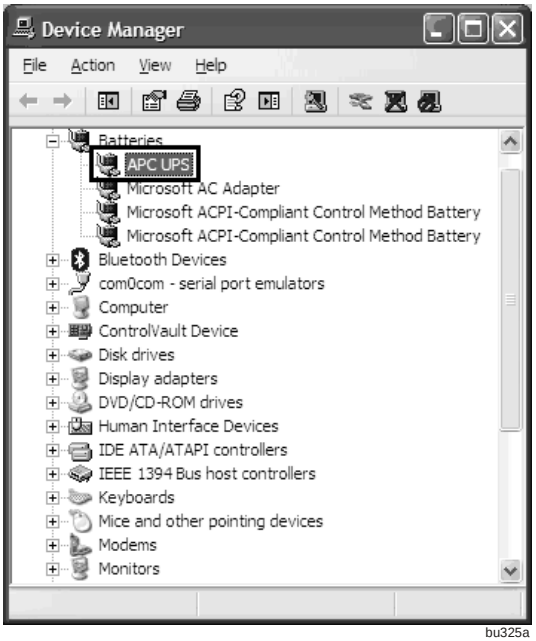
In the Device Manager window, expand Batteries. There should be a HID UPS Battery listing under Battery. Then you can skip following steps. If you see an APC UPS device instead of a HID UPS Battery device. You need to update the driver of UPS to the driver of HID UPS Battery

❹ **Updating the driver from APC UPS to HID UPS Battery**



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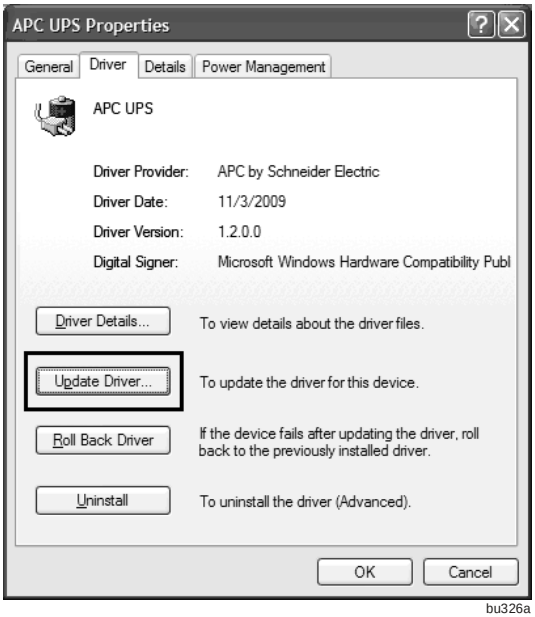
4.1 Double click the APC UPS device.



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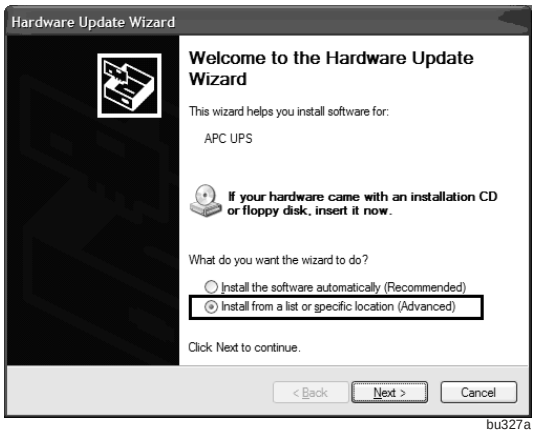
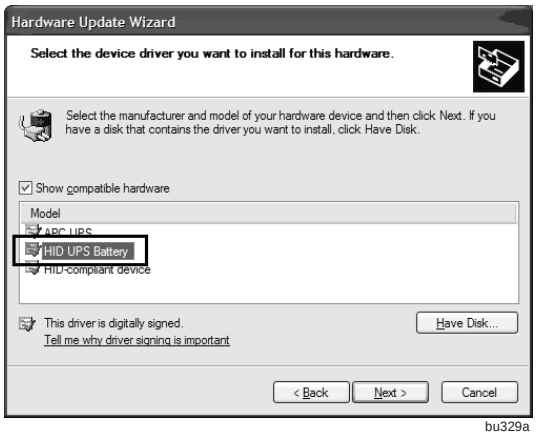
4.2 From the Driver tab, click on the Update Driver button


Hardware Update Wizard
Welcome to the Hardware Update Wizard
This wizard helps you install software for:
APC UPS
If your hardware came with an installation CD or floppy disk, insert it now.
What do you want the wizard to do?
Install the software automatically (Recommended)
Install from a list or specific location (Advanced)
Click Next to continue.
< Back
Next >
Cancel
bu327a

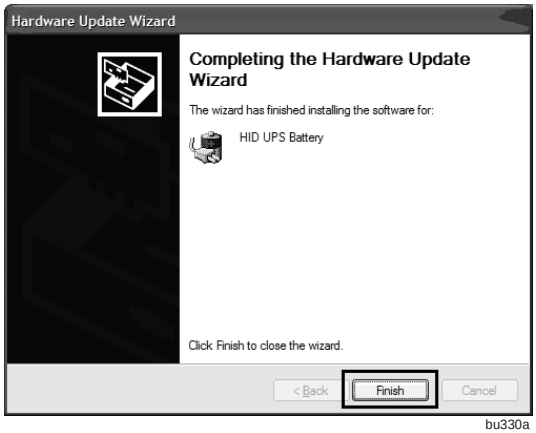
4.3 In the Hardware Update Wizard window, select Install from a list or specific location (Advanced), then click Next button.

Hardware Update Wizard
Please choose your search and installation options.
Search for the best driver in these locations.
Use the check boxes below to limit or expand the default search, which includes local paths and removable media. The best driver found will be installed.
Search removable media (floppy, CD-ROM...)
Include this location in the search:
Browse
Don't search. I will choose the driver to install.
Choose this option to select the device driver from a list. Windows does not guarantee that the driver you choose will be the best match for your hardware.
< Back
Next >
Cancel
bu328a

4.4 In the Hardware Update Wizard – Please choose your search and installation options window, select Don't search. I will choose the driver to install, then click the Next button.


Hardware Update Wizard
Select the device driver you want to install for this hardware.
Select the manufacturer and model of your hardware device and then click Next. If you have a disk that contains the driver you want to install, click Have Disk.
Show compatible hardware
Model
APC UPS
HID UPS Battery
HID-compliant device
This driver is digitally signed.
Tell me why driver signing is important
Have Disk...
< Back
Next >
Cancel
bu329a

4.5 In the Hardware Update Wizard – Select the device driver you want to install for this hardware. Choose HID UPS Battery, then click Next button.



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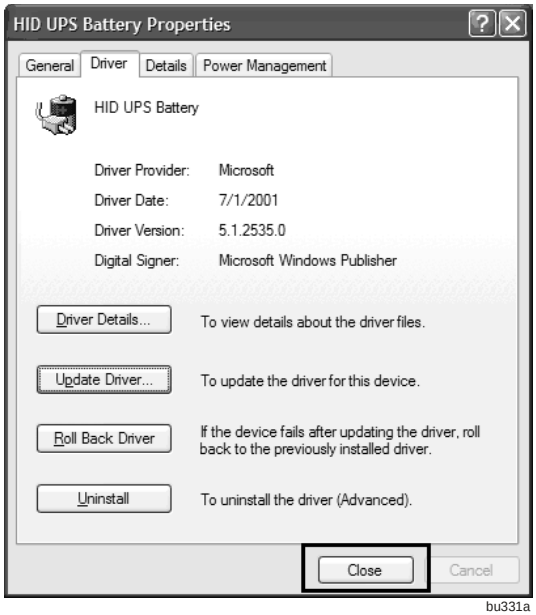
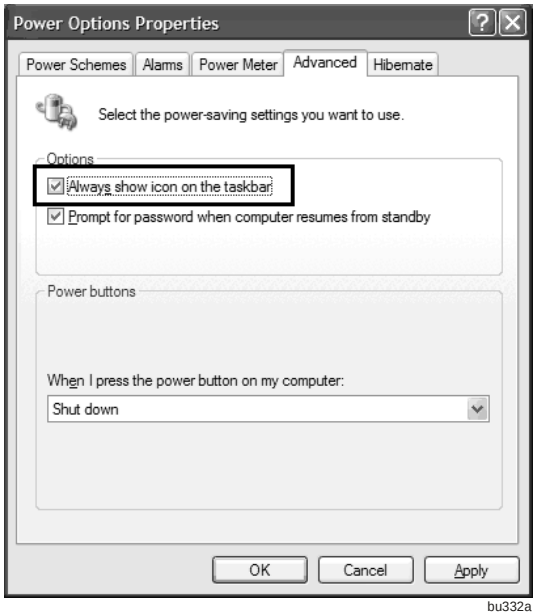
4.6 In the Hardware Update Wizard – Completing the Hardware Update Wizard window, click Finish button.



bu331a

4.7 After completing above steps, Window XP will return to the HID UPS Battery Properties window. Click Close to finish updating driver.

❺

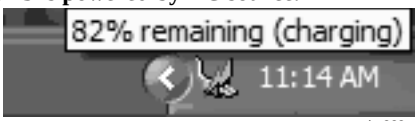


bu332a

If the UPS is powered by AC source, Windows XP will not display an icon on the taskbar by default. You can change this behavior by clicking Start --> Setting --> Control Panel --> Power Options. In the Power Options Properties window, select Advanced tab, the check Always show icon on the taskbar.

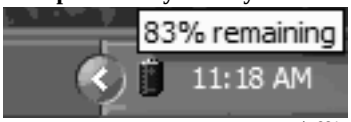
❻ Windows XP will display an icon in the taskbar.

If UPS is powered by AC source.



bu333a

If UPS is powered by battery.



bu334a

Configuring PC Shutdown

Make sure the battery icon on the previous section is already present on the system tray / task bar of your operating system before proceeding to configuring the PC shutdown.

Mac OS X

Turn on the UPS, connect the UPS to the Mac computer using the supplied USB cable.

1.Click System Preferences icon along the Dock.

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❷

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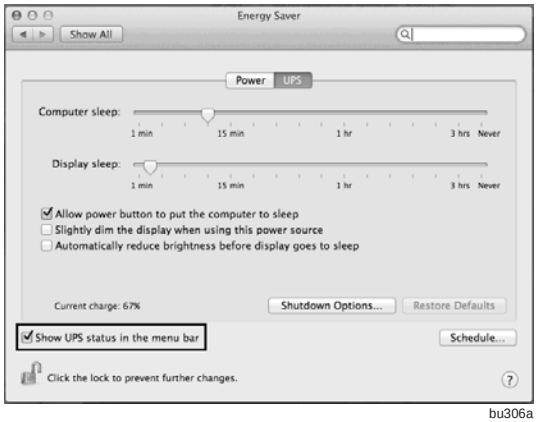
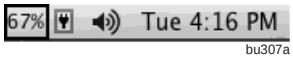
Click Energy Saver icon, you should see a UPS tab displayed in the dialog.

❸



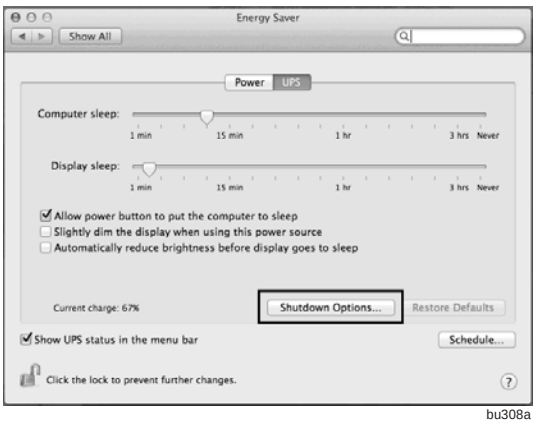
bu306a



bu307a

Click UPS tab, check Show UPS status in the menu bar option. The Mac OS X will then display a UPS icon in the menu bar.

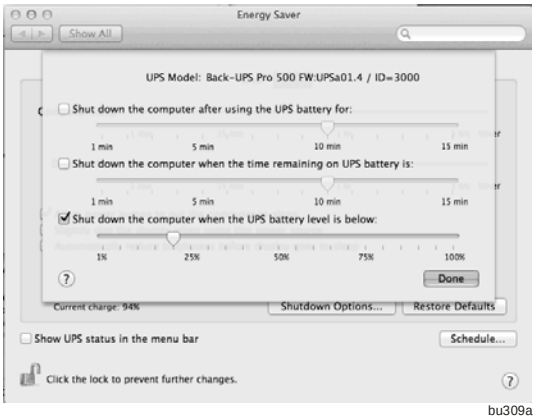
❹



bu308a

To configure the shutdown options, click on the Shutdown Options button.

❺



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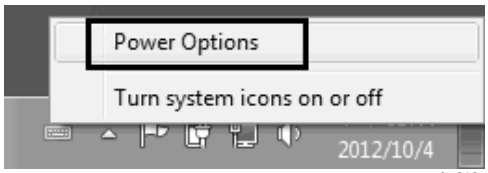
After configuring the shutdown options, click Done.

Windows 7

❶



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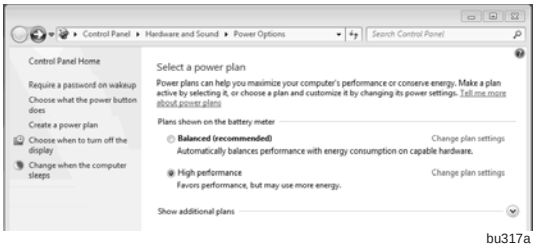
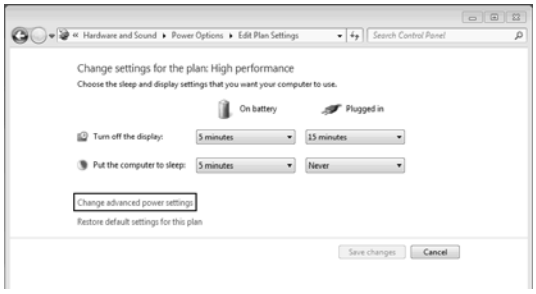
❷


Control Panel ▸ Hardware and Sound ▸ Power Options
Search Control Panel
Control Panel Home
Require a password on wakeup
Choose what the power button does
Create a power plan
Choose when to turn off the display
Change when the computer sleeps
Select a power plan
Power plans can help you maximize your computer's performance or conserve energy. Make a plan active by selecting it, or choose a plan and customize it by changing its power settings. Tell me more about power plans
Plans shown on the battery meter
Balanced (recommended)
Change plan settings
Automatically balances performance with energy consumption on capable hardware.
High performance
Change plan settings
Favors performance, but may use more energy.
Show additional plans

bu317a

On the Select a power plan page, next to the plan you want to change, click Change plan settings.

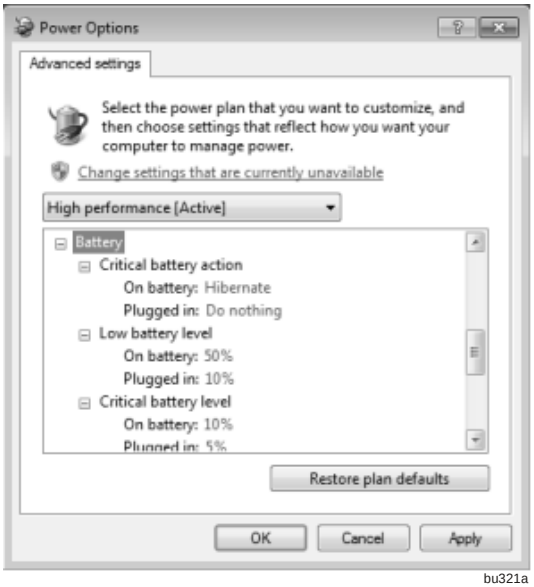
❸


« Hardware and Sound ▸ Power Options ▸ Edit Plan Settings
Search Control Panel
Change settings for the plan: High performance
Choose the sleep and display settings that you want your computer to use.
On battery
Plugged in
Turn off the display:
5 minutes
15 minutes
Put the computer to sleep:
5 minutes
Never
Change advanced power settings
Restore default settings for this plan
Save changes
Cancel

bu320a

On the Change settings for the plan page, click Change advanced power settings.

❹



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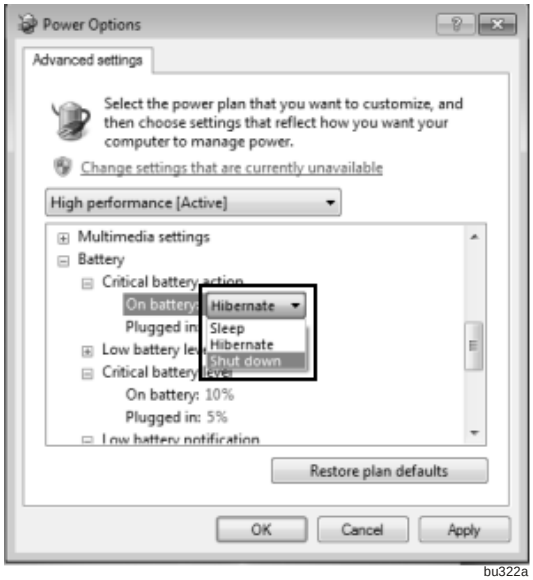
On the Advanced settings tab, expand Battery, expand Low battery level, Reserve battery level, and Critical battery level. Change the percentage of battery remaining that you want for each level, and then click OK.

❺



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To configure the Windows 7 to shutdown itself, expand Critical battery action. From the drop down box next to On battery item, select Hibernate or Shutdown, and click OK button to save the settings. Then Windows will hibernate or shutdown itself when the percentage of battery remaining drops below the configured critical level.

Windows XP

1. Turn on UPS and connect UPS to the Windows XP computer via a USB cable.

❷ Windows XP will display an icon in the taskbar.

If UPS is powered by AC source:

bu333a

If UPS is powered by battery:

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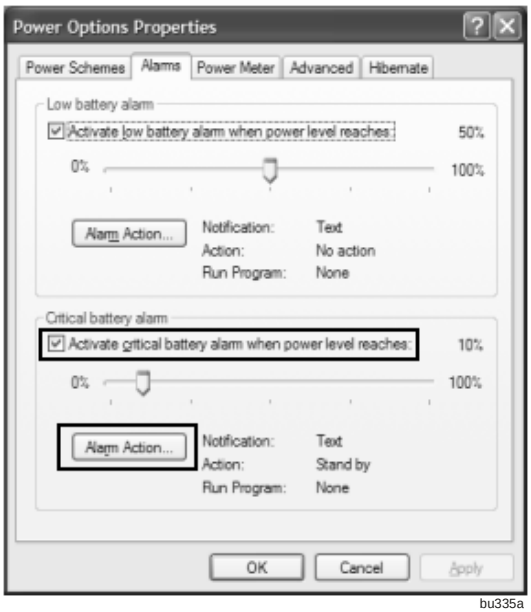
❸



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In the Power Options Properties window, select Alarms tab. In the Critical battery alarm pane, check Activate critical battery alarm when the power level reaches: option, change the percentage of battery remaining that you want for critical battery level. Then click Alarm Action button.

❹

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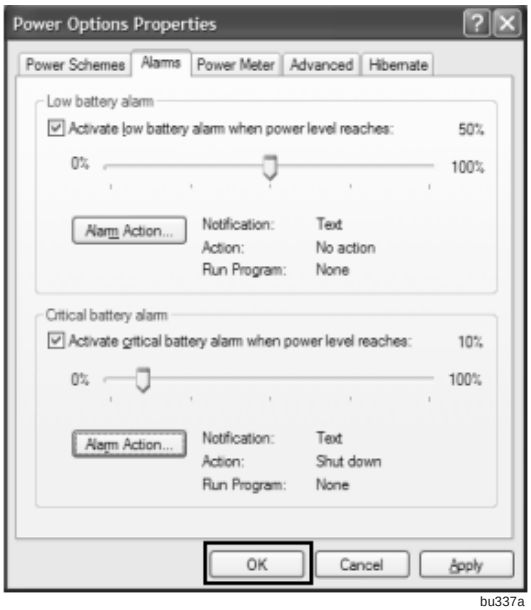
In the Critical Battery Alarm Actions window, check When the alarm goes off, the computer will option, the select Hibernate or Shutdown from the drop down box. Also check Force stand by or shutdown even if a program stops responding, then click OK button to close the window.

❺



bu337a

After returning to Power Options Properties window, click OK button to apply the settings.

Display Interface

Status Indicators

Status	LED Indicator	Audible Indicator On	Audible Indicator Terminates
Power On The Back-UPS is supplying AC power to connected equipment.	**The green LED illuminates.**	**None**	**N/A**
On Battery Back-UPS supplying battery power to battery backup outlets.	**Default:** **The green LED illuminates but is not illuminated during the beeps**	**Default:** **Back-UPS beeps 4 times every 30 seconds.**	**Default:** **Beeping stops when AC power is restored or the Back-UPS is turned off.**
	The green LED illuminates. The LED flashes once every 2 seconds	**Back-UPS beeps for 2 seconds when entering battery mode.**	**Beeping stops at the end of the first two seconds. A constant beep at the initial two seconds indicates the Back-UPS has entered the battery mode.**
Low Battery warning The Back-UPS is supplying battery power to the battery backup outlets and the battery is near a total discharge state.	**The green LED illuminates with rapid green flashes every 1/2 second.**	**The Back-UPS emits rapid beeping every 1/ 2 second.**	**Beeping stops when AC power is restored or the Back-UPS is turned off.**
Battery Disconnected The battery is disconnected or an unknown battery pack is connected to the Back-UPS	**The green LED illuminates and the LED flashes red.**	**Constant tone**	**Back-UPS is turned off. or battery is re-connected**
Unrecognized Battery Alarm While on AC power the Back-UPS cannot identify the non-APC battery in the Back-UPS	**The and LEDs illuminate green/red**	**Constant tone**	**•Back-UPS is turned off** **•When APC approved battery pack APCRBC146-LI is used**
Unrecognized Battery Shutdown While on power outage, the Back-UPS shuts down completely due to an unknown battery connected to the Back-UPS	**The red LED illuminates.**	**Constant tone**	**•Back-UPS is turned off** **•When APC approved battery pack APCRBC146-LI is used**
Replace Battery The battery needs to be replaced.	**The green and red LEDs illuminate alternately**	**Constant tone**	**Back-UPS is turned off.**
Network Status When Back-UPS is connected to the Ethernet network with 100M speed	**The flashes green.**	**None**	**None**
When Back-UPS is connected to the Ethernet network with 10M speed	**The flashes orange.**	**None**	**None**
Energy Management When Master Control Mode is enabled	**The LED illuminates.**	**None**	**When Master Control Mode is disabled**
Watchdog When any Watchdog is enabled	**The LED illuminates.**	**None**	**When Watchdog is disabled on both outlets**
Overload Shutdown An overload condition has occurred in one or more of the battery backup outlets while the Back-UPS is operating on battery power.	**None**	**Constant tone**	**Back-UPS is turned off.**

Status	LED Indicator	Audible Indicator On	Audible Indicator Terminates
Overload Alarm While on AC power the online power exceeds the Back-UPS capacity.	**The** **green LED illuminates.**	**Constant tone**	**Beeping stops when equipment power plugs are moved from battery backup outlets to surge protection outlets.**
Sleep Mode While on battery power, the battery is completely discharged. The Back-UPS will "awaken" once AC power is restored.	**None**	**The Back-UPS beeps once every four seconds.**	**Beeping stops when:** • AC power is restored • If AC power is not restored within 32 seconds • The Back-UPS is turned off
Building Wiring Fault The building wiring presents a shock hazard that must be corrected by a qualified electrical.	**Building Wiring Fault LED at the rear panel illuminates red**	**None**	**The Back-UPS is unplugged from the wall outlet or is plugged into an improperly wired outlet.**

Configuration

UPS Settings

Voltage Sensitivity Adjustment

Voltage sensitivity settings can be set using the following instructions or through the web-based management interface. Refer to page 34 to change Power Settings or continue with the instructions below.

No-load Shutdown. The UPS will shut down to conserve energy if while operating on battery power the UPS detects that connected equipment is using less than 15 W of energy for more than 5 minutes.

No-load shutdown can be enabled or disabled through Programming mode described in the Sensitivity Settings section.

Sensitivity Settings. The Back-UPS will switch to battery power if the AC power is experiencing voltage fluctuations. If the Back-UPS switches to battery power too frequently or too infrequently, adjust the transfer voltage and sensitivity settings:

1. Verify that the Back-UPS battery is connected. Connect the Back-UPS to a wall outlet. The Back-UPS should be turned off.
2. Press and hold the POWER ON/OFF button until the Power On/Off and Replace Battery LEDs flash simultaneously. Release the button. The flashing green LED of the power button indicates that the Back-UPS has entered into Programming mode.
3. Immediately press the POWER ON/OFF button to change the current setting. Press and release the POWER ON/OFF button to scroll through available settings. Refer to the table for an explanation of the transfer voltage sensitivity levels.
4. To exit Program mode wait five seconds and the LED will extinguish. Program mode is no longer active.

No-load Shutdown	Transfer Voltage Setting	Input Voltage Range	Replace Battery Red LED	Watchdog Green LED	Power Saving Green LED	Power Button Green LED
Disabled	Low	88-142 (NAM)	Off	Off	On	Flashing
Disabled	Medium (factory default)	92-139 (NAM)	Off	On	Off	Flashing
Disabled	High	96-136 (NAM)	Off	On	On	Flashing
Enabled	Low	88-142 (NAM)	On	Off	On	Flashing
Enabled	Medium	92-139 (NAM)	On	On	Off	Flashing
Enabled	High	96-136 (NAM)	On	On	On	Flashing

Smart Outlets

Note: Smart outlets provide battery back-up or surge only power to connected equipment.

Overview

The Smart outlets can be configured to independently turn off, turn on, and reboot connected equipment.

The Smart outlets can be configured to do the following:

- Turn off: Disconnect from power immediately and restart only with a manual command
- Turn on: Connect to power immediately
- Reboot: Shut down and restart

In addition, the Smart outlets can be configured to do the following:

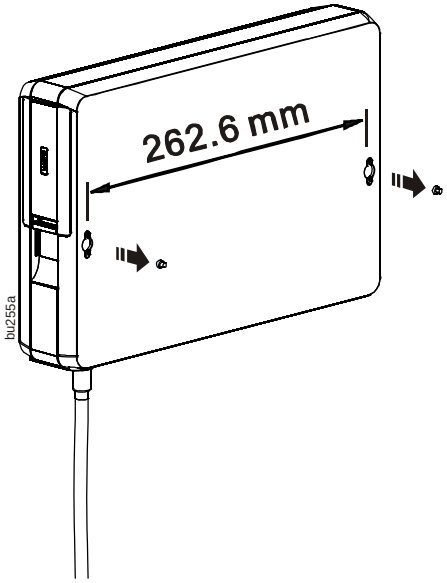
- Automatically turn off or reboot when various conditions occur

Use of Smart outlets

1. Connect critical equipment to a Smart outlets.
2. Connect peripheral equipment to the other Smart outlet.
   - During a power outage, to conserve battery runtime, non-essential equipment can be configured to shut down after a short delay
   - If equipment has dependent peripherals that must restart or shut down in a specific order, such as an ethernet switch that must restart before a connected server, connect the devices to separate groups
   - Equipment that needs to reboot independently from other equipment should be connected to a separate group
3. Use the **Configuration** menus to configure how the Smart outlets will react in the event of a power outage. See Outlet Settings on page 37.

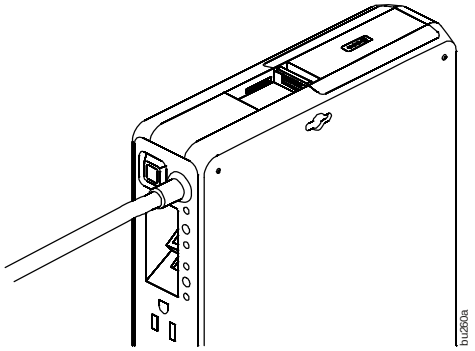
Wall Mount Installation

- Use M4 size screws or smaller to ensure secure wall-mount installation.
- Select a location suitable for the UPS. Set 2 screws in the wall 262.6 mm (10.3") apart.
- Allow 8 mm (5/16”), of the screw to protrude from the wall.
- Use the indentations on the back of the UPS to hang the UPS on the screws.



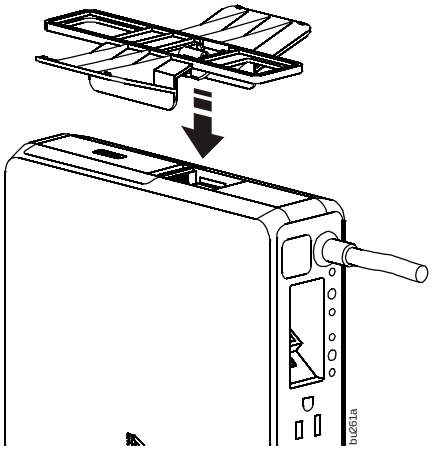
Tower Configuration

❶



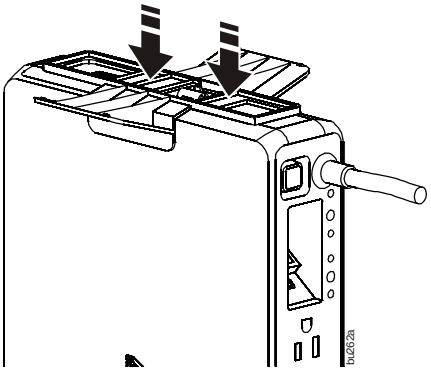
Locate the stabilizer mounting slot at the bottom of the UPS. It is located beside the battery compartment door.

❷



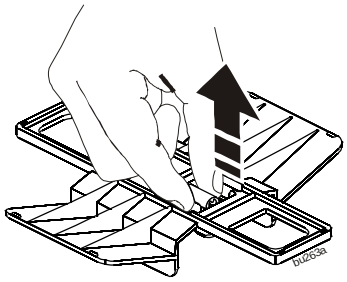
Align the bracket's locking tab with the stabilizer mounting slot.

❸



Push the stabilizer bracket until it snaps and locks into the mounting slot.

❹



When detaching the stabilizer bracket from the mounting slot, use fingers to pull the handle off the slot.

Web based Management Interface

The purpose of the Web based Management Interface is to allow users to remotely access and view UPS settings and state. Through this interface users can monitor energy usage per outlet and remotely control Smart Outlets, turning them on / off and enabling / disabling intelligent services like Energy Management and Watchdog. Most importantly users can make smart decisions about how to manage the devices connected to their UPS in a way specific to their needs.

Network Management Features

Check Battery state and capacity	See approximate runtime available from the UPS when the UPS is on battery. The interface also indicates the condition of the battery, if it is in good condition or if it needs to be replaced.
Energy Management	Smart Outlets can be set to off when there is no load on the master outlet.
Monitor Energy Utilization	View energy usage and approximate cost of energy consumed by outlet or for all the outlets combined.
Backup / Surge configuration	All 4 outlets on the UPS offer surge protection whether the unit is on or off. The default configuration is for all 4 outlets to offer backup protection. The top two Backup outlets are full-time battery backup and the two Smart Outlets can be configured to provide battery backup or be surge only with no battery backup protection. This configuration is used for non-critical functions that don't need power during an outage.
Watchdog Utility	Detects when there is loss of Internet connectivity and can automatically reboot networking equipment to try to restore connection.
Manage Network configurations	The Back-UPS Pro has a full range of networking features such as support for IPV4 / IPV6 addressing.
Remotely turn on and off UPS	Remotely control Smart Outlets with the option to turn them on, off or reboot. As long as there is AC to the unit even if the UPS is off the Network Management interface is still accessible and can be used to turn on the UPS.
Manage and view logs	The Back-UPS Pro has multiple types of logs including event, data and energy usage.
Initiate self-tests	Initiate self-tests to ensure that the UPS is functioning properly
Notification	E-mail notifications can be sent when critical, warning or informational events occur.

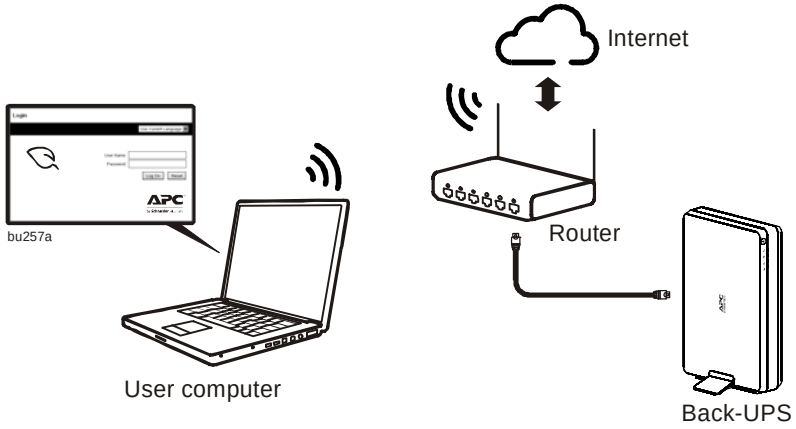
Network Quick Configuration

There are 3 important steps to follow before you can manage the Back-UPS Pro.

Step 1: Connect the unit to the network.

Step 2: Discover the IP address of the unit.

Step 3: Access the Web management interface.



Connect the unit to the network

To install the Back-UPS Pro onto a network and access the Web based management interface, you have to connect the Network Management port on the back of the UPS to a router or switch.

Discover the IP address of the unit

Out of the box the Back-UPS Pro will get an IP Address from the network via DHCP. In order to connect to the UPS we must first discover that IP Address using the Device IP configuration Wizard. Use the following steps to install and run the Device IP Configuration Wizard. For non-Windows based platforms, the IP Address can be obtained by accessing your DHCP server and pulling the IP Address directly or the UPS must be configured to have a static IP Address.

Note: If an anti-virus is installed to block the software in your computer, configure the anti-virus setting to permit the Device IP Wizard to access the network.

How to use the Wizard to discover TCP/IP settings

The Device IP Configuration Wizard configures the IP address, the subnet mask, and the default gateway of one or more UPS devices.

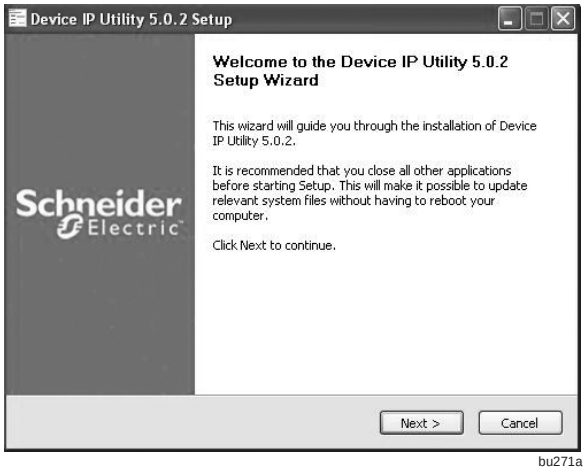
The Wizard is for IPv4 only. For detailed information on the Wizard, see the Knowledge Base on the support page of the **www.apc.com** website and search for 3061 (the ID of the relevant article).

To use the DHCP Option 12 (AOS 5.1.5 or higher), see Knowledge Base ID 8853.

Installation of the Device IP Config Wizard. The Software and Documentation CD contains the installation program of the Wizard. The Wizard runs on Microsoft Windows 2000, Windows Server® 2003, Windows XP, Windows Vista, Windows 7 and Windows 8 operating systems. For users of non-Windows based operating systems the IP Address can be obtained by accessing your router and looking at DHCP tables.

1. If autorun is enabled, a browser should open the home page of the CD immediately after being inserted. Otherwise, open the contents.htm file from the CD to access the home page.
2. From the home page click the Device IP Configuration Wizard link.
3. From the Device IP Configuration Wizard page click the Install the Wizard link to run the setup file directly or save the file to your local hard drive and run it locally.

❹


Device IP Utility 5.0.2 Setup
Welcome to the Device IP Utility 5.0.2 Setup Wizard
This wizard will guide you through the installation of Device IP Utility 5.0.2.
It is recommended that you close all other applications before starting Setup. This will make it possible to update relevant system files without having to reboot your computer.
Click Next to continue.
Schneider Electric
Next >
Cancel

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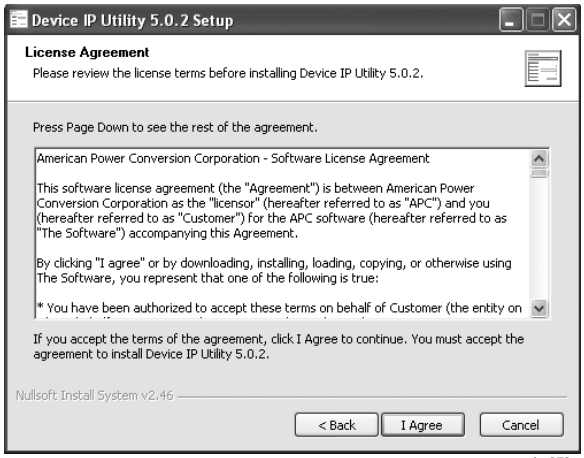
Click on Next.

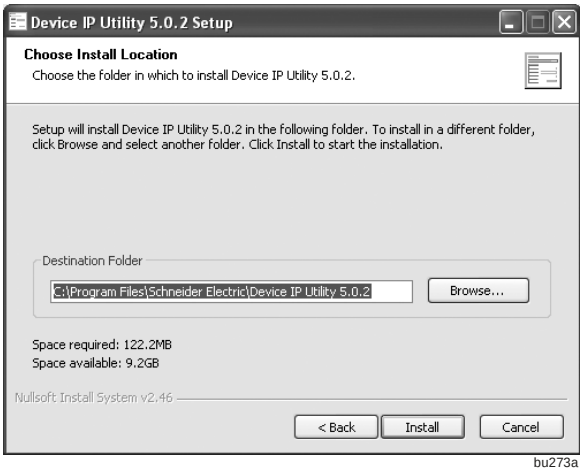
❺


Device IP Utility 5.0.2 Setup
License Agreement
Please review the license terms before installing Device IP Utility 5.0.2.
Press Page Down to see the rest of the agreement.
American Power Conversion Corporation - Software License Agreement
This software license agreement (the "Agreement") is between American Power Conversion Corporation as the "licensor" (hereafter referred to as "APC") and you (hereafter referred to as "Customer") for the APC software (hereafter referred to as "The Software") accompanying this Agreement.
By clicking "I agree" or by downloading, installing, loading, copying, or otherwise using The Software, you represent that one of the following is true:
* You have been authorized to accept these terms on behalf of Customer (the entity on
If you accept the terms of the agreement, click I Agree to continue. You must accept the agreement to install Device IP Utility 5.0.2.
Nullsoft Install System v2.46
< Back
I Agree
Cancel

bu272a

Click on I Agree.

❻


Device IP Utility 5.0.2 Setup
Choose Install Location
Choose the folder in which to install Device IP Utility 5.0.2.
Setup will install Device IP Utility 5.0.2 in the following folder. To install in a different folder, click Browse and select another folder. Click Install to start the installation.
Destination Folder
C:\Program Files\Schneider Electric\Device IP Utility 5.0.2
Browse...
Space required: 122.2MB
Space available: 9.2GB
Nullsoft Install System v2.46
< Back
Install
Cancel

bu273a

Click on Install.

❼

Device IP Utility 5.0.2 Setup
Completing the Device IP Utility 5.0.2 Setup Wizard
Device IP Utility 5.0.2 has been installed on your computer.
Click Finish to close this wizard.
Run Device IP Utility 5.0.2
Schneider Electric
< Back
Finish
Cancel

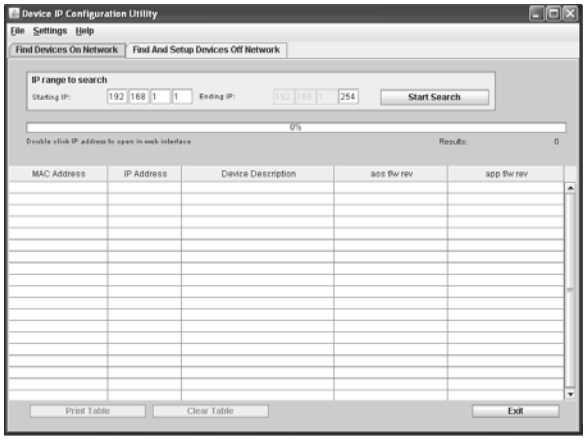
bu274a

Click Finish to complete the utility installation.

To Download Device IP Configuration from the APC by Schneider Electric Website.

1. Go to www.apc.com/tools/download.
2. Download the Device IP Configuration Wizard.
3. Run the executable file in the folder from where it was downloaded. Go back to Step 4 under the Installation of the Device IP Config Wizard section.

Use the Device IP Configuration Utility. Once installed, the Device IP Configuration Utility will determine the IP Address assigned to your Back-UPS Pro by your network.



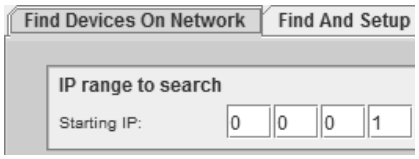
bu275a

1. Start the Device IP Configuration Utility. The program can be found using Start -> Programs -> Schneider-Electric -> Device IP Configuration Utility (A version number may be included at the end of the file name).

2. You should be on the first tab “Find Devices On Network” in the Wizard and enter the IP range to search. The first 3 IP segments left should be the same to the TCP/IP settings of your computer, the 4th segment is usually 1 for the Starting IP and is 254 for the Ending IP. The values should automatically be entered for you if your computer’s network interface is working properly. Click Start Search to begin.

Note: Both PC and UPS must be connected to the same router even if the PC is in a wireless network.

2a. On rare occasions the IP Address may not populate properly as seen in the graphic on the right.

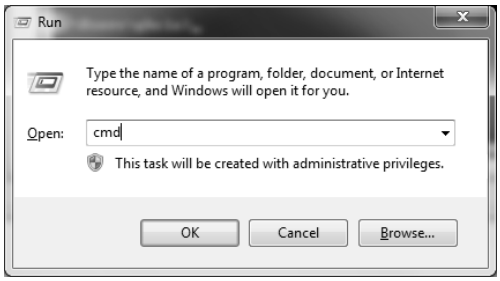


bu344a

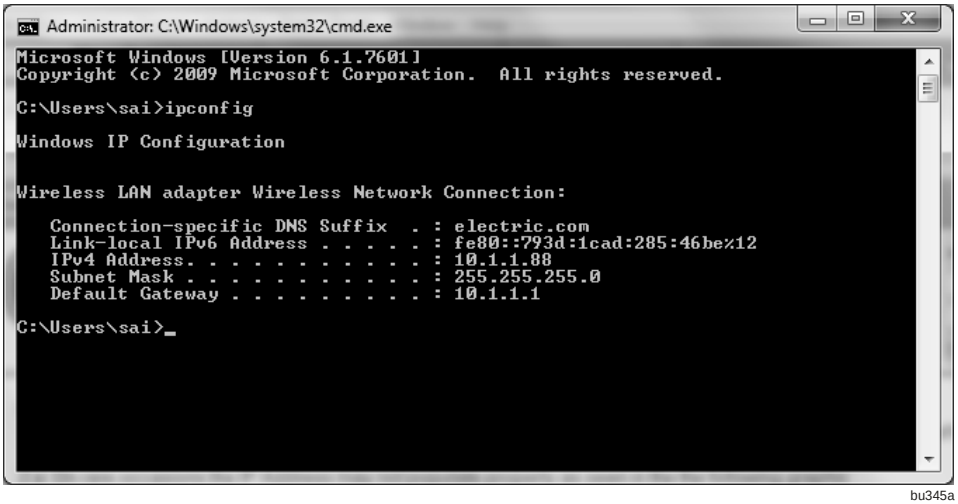
If the first 3 entries are 0 then you must obtain your network IP address by using the Run command in Windows.

a) Press the Windows Key + r

b) Type 'cmd' in the window that pops up (leave out the apostrophe)

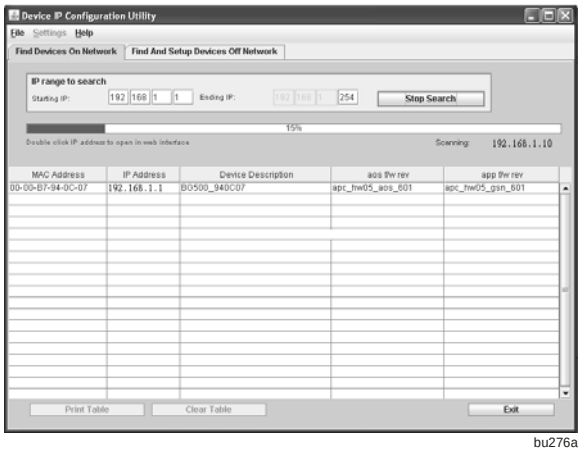

Run
Type the name of a program, folder, document, or Internet resource, and Windows will open it for you.
Open:
cmd
This task will be created with administrative privileges.
OK
Cancel
Browse...
bu346a

c) In the command window type 'ipconfig'


Administrator: C:\Windows\system32\cmd.exe
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.
C:\Users\sai>ipconfig
Windows IP Configuration
Wireless LAN adapter Wireless Network Connection:
Connection-specific DNS Suffix . : electric.com
Link-local IPv6 Address . . . . . : fe80::793d:1cad:285:46be%12
IPv4 Address. . . . . : 10.1.1.88
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . : 10.1.1.1
C:\Users\sai>
bu345a

d) Look for the line with IPv4 and the number on the right is your IP Address. All you need are the first 3 numbers. Enter that into your Device IP Configuration Wizard Starting IP. The forth number will always be 1.

bu347a



bu276a

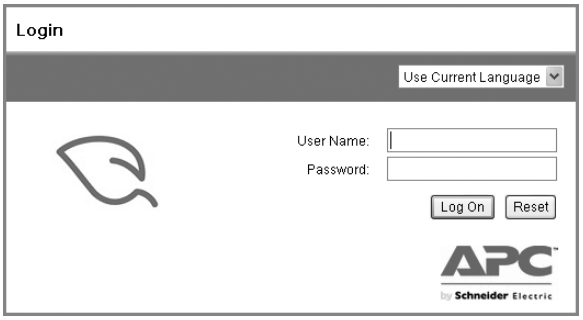
3. After the Back-UPS Pro has searched the network, the Back-UPS Pro unit should be listed in a table within the Utility. Click on its IP Address to access the management interface. If you have multiple Back-UPS units or other network manageable APC UPS'es there may be multiple entries, match the MAC Address on the black tab in the battery door of the Back-UPS Pro to the MAC Address listed in the utility. Click this IP Address to access the management interface. Bookmark this IP Address and save it for future reference.

Reset Network to default. If the Device IP Configuration Utility is unable to find your Back-UPS Pro unit, make sure that both the PC and the Back-UPS Pro are on the same network. If that is the case then it may be necessary to press the Network Reset button in the rear panel for 20 seconds to reset the network interface. Once the system has restarted return to the Device IP Configuration Utility and search for your Back-UPS Pro unit again.

Access the Web management interface

To access the Web page of Back-UPS Pro on the network:

1. Open up any browser and address the Back-UPS Pro by the IP address that the Device IP Configuration Utility found for the Back-UPS Pro unit.
2. Enter the user name and password (by default, use apc and apc to login as the administrator).



bu277a

How to Recover a Lost Password or Misconfigured Network Interface

Press the Reset button for 20 seconds to reset the user name and password to the defaults of apc and apc. This will also result in the network interface being reset to factory default of DHCP.

Set the IP Address on a Network Without DHCP

1. In order to add a static IP Address directly, connect your laptop to the Back-UPS Pro UPS directly using the supplied Ethernet cable. Click the “Find And Setup Devices Off Network” tab in the Wizard.
2. Click Start Search to begin. After the Back-UPS has searched the network, the Back-UPS unit should be listed in a table within the Utility.
3. Click the MAC address in the MAC Address table of the Wizard for configuring an new IP address, Subnet Mask, Gateway Address for the Back-UPS.
   By clicking the “?” appearing a Network Adapter Information window, you can check the properties of the Network. Connection of your PC to get the TCP/IP settings of your computer. Fill up the field and Apply Changes:
   - IP Address: xxx.yyy.0.1 (xxx and yyy are the same to your computer in the Network Adapter Information).
   - Subnet Mask: 255.255.0.0
   - Gateway Address: xxx.yyy.0.1 (xxx and yyy are the same to your computer in the Network Adapter Information).
4. The Web Interface will be open. Refer to "Access the Web management interface" on page 25.

How to Change Back-UPS to Another Network

1. Login to the web interface of Back-UPS.
2. Click to "Network Menu" on page 40 in path of Network > Settings.
3. Configure the network settings that you want to change.
4. Reboot the Management Interface in path of Network > Reset/Reboot, or press the Network Reset button in the rear panel of Back-UPS for 1 second.
5. Connect the Back-UPS to other network with the Ethernet cable.
6. Access the Web page of Back-UPS with the new IP address.

Web User Interface

Introduction

Overview

The Web user interface provides options to manage the UPS and to view the status of the UPS.

Supported Web browsers

You can use Microsoft® Internet Explorer® (IE) 7.x or higher (on Windows® operating systems only) or Mozilla® Firefox® 3.0.6 or higher (on all operating systems) to access the UPS through its user interface. Other commonly available browsers might work but have not been fully tested.

The UPS cannot work with a proxy server. Before you can use a browser to access the user interface, you must do one of the following:

- Configure the browser to disable the use of a proxy server.
- Configure the proxy server so that it does not proxy the specific IP address.

URL address formats

Type the IP address or DNS name of the UPS in the Web browser's URL address field and press ENTER. When you specify a non-default Web server port in Internet Explorer, you must include `http://` in the URL.

Common browser error messages at log-on.

Error Message	Browser	Cause of the Error
"This page cannot be displayed."	**Internet Explorer**	**Web access is disabled, or the URL was not correct.**
"Unable to connect."	**Firefox**	

URL format examples.

Example and Access Mode	URL Format
System IP address of `139.225.6.133` and a default Web server port (80)	
HTTP	`http://139.225.6.133`
DNS name of `Web1`	
HTTP	`http://Web1`
System IPv6 address of `2001:db8:1::2c0:b7ff:fe00:1100`	
HTTP	`http://[2001:db8:1::2c0:b7ff:fe00:1100]`

User Overview

You can use the DNS name or the System IP address of the UPS for the URL address of the user interface. Use your case-sensitive user name and password to log on. The default administrator's user name is **apc**.

The default password is **apc**.

You can set your user interface language as you log on by choosing a language from the **Language** drop-down box.

Home Menu

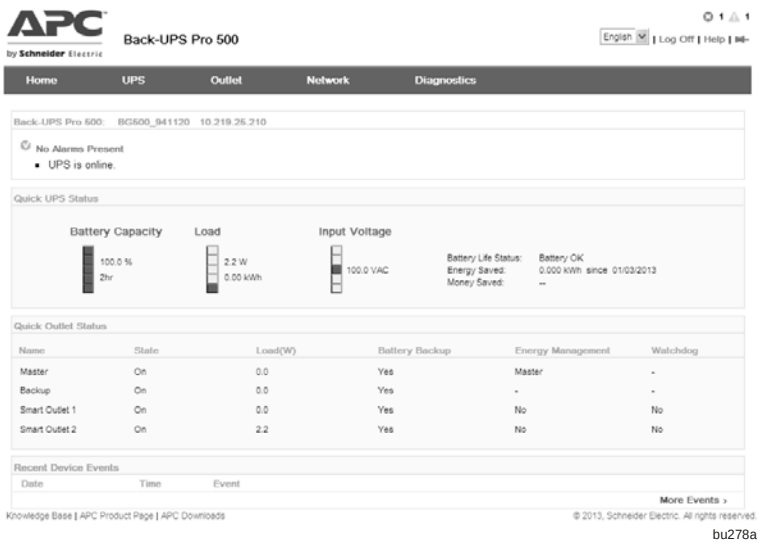
Tabs, Menus, and Links

At the lower left on each page of the interface, there are three configurable links. By default, the links access the URLs for these Web pages:

- **Link 1**: the Knowledge Base page of the **www.apc.com** website
- **Link 2**: the APC Product Page of the **www.apc.com** website
- **Link 3**: the APC Downloads page of the **www.apc.com** website

Overview

Path: Home



bu278a

On the **Home** page of the interface, you can view active alarm conditions and the most recent events recorded in the event log.

Quick UPS Status

This shows you the UPS load, battery Capacity, Input Voltage, Battery Life Status, Energy Saved, Money Saved.

Quick Status Icons

One or more icons and accompanying text indicate the current operating status of the UPS:

Symbol	Description
	Critical: A critical alarm exists, which requires immediate action.
	Warning: An alarm condition requires attention and could jeopardize your data or equipment if its cause is not addressed.
	No Alarms: No alarms are present, and the UPS is operating normally.

At the upper right corner of every page, the same icons report the UPS status. If any **Critical** or **Warning** alarms exist, the number of active alarms also displays.

To return to the **Home** page click on one of these quick status icons on any page of the interface.

Quick Outlet Status

This table shows you state, load, battery backup setting, Energy Management configuration and watchdog state for each outlet.

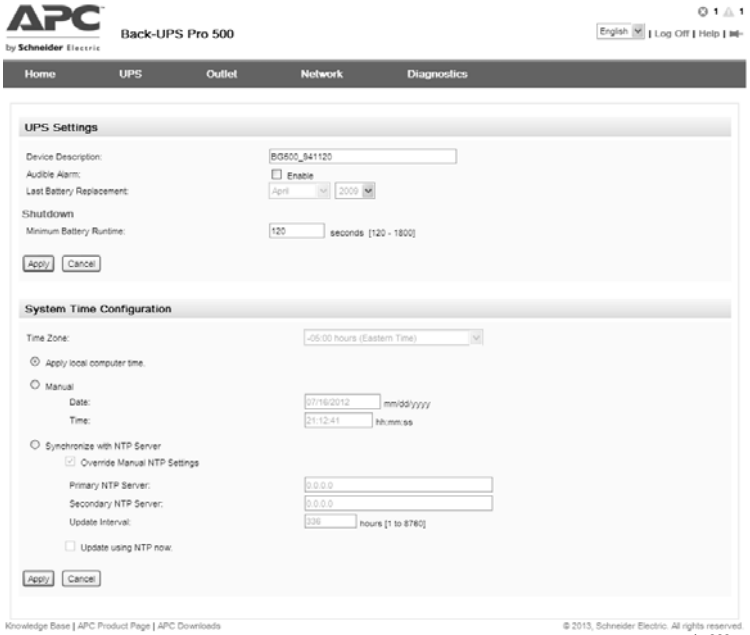
Recent Device Events

Lists the last 5 network events. To view the entire event log, click **More Events**. See "Diagnostics Menu" on page 43.

UPS Menu

UPS Settings

Path: UPS > Settings



bu282a

Setting	Definition
Device Description	**A description that the user specify to identify the UPS. This also appears in the Device IP Configuration Wizard and can be used to identify individual systems when more than one network enabled APC UPS is on the network.**
Audible Alarm	**Enable or disable the audible alarm of the UPS, and, for some UPS models, define the condition that will cause the alarm to sound.**
Last Battery Replacement	**Enter the month and year of the most recent battery replacement.**
Maximum Battery Runtime	**Defines the amount of available battery runtime, in seconds, at which the UPS sends the signal for a low-battery condition.**

System Time Configuration

System Time page. Set the time and date used by the UPS. You can change the current settings manually or through a Network Time Protocol (NTP) Server:

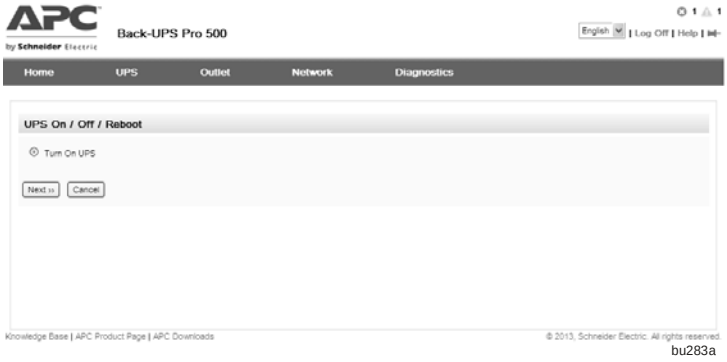
Time Zone	**Select a time zone. The number of hours preceding each time zone in the list is the offset from Coordinated Universal Time (UTC), formerly Greenwich Mean Time.**

- **Apply Local Computer Time:** Select to match the date and time settings of the computer you are using.
- **Manual Mode**: Enter the Time Zone, date and time for the UPS.
- **Synchronize with NTP Server**: Have an NTP Server define the date and time for the UPS.

Setting	Definition
Primary NTP Server	**Enter the IP address or domain name of the primary NTP server.**
Secondary NTP Server	**Enter the IP address or domain name of the secondary NTP server, when a secondary server is available.**
Update Interval	**Define how often, in hours, the UPS accesses the NTP Server for an update. *Minimum*: 1; *Maximum*: 8760 (1 year).**
Update Using NTP Now	**Initiate an immediate update of the date and time by the NTP Server.**

UPS On/Off/Reboot

Path: UPS > On/Off/Reboot



bu283a

The UPS On/Off/Reboot menu options enable you to take immediate actions on your UPS and your outlets.

When you choose a radio button option and click Next, another page summarizes the action to take place; click Apply there to continue.

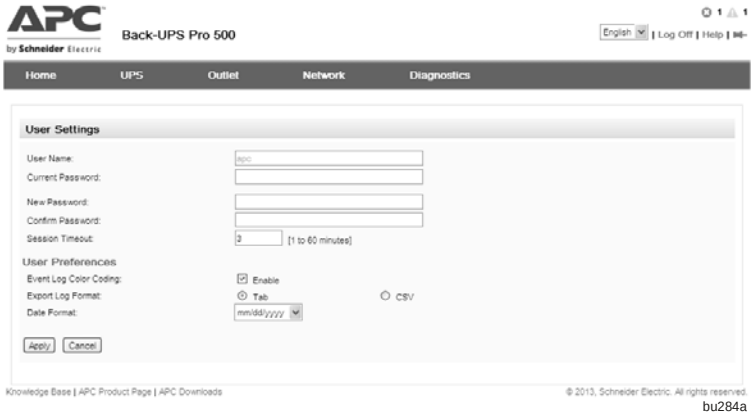
Action	Definition
Turn Off UPS	**This displays only when the UPS is on. It turns off the output power of the UPS and (for Smart Outlet) of all its outlets immediately. The UPS and all its outlets remain off until you manually turn it on again.**
Reboot UPS	**This displays only when the UPS is on. Restarts the attached equipment by turning off power at the UPS. For a UPS with outlets, the UPS turns on and before an outlet turns on.**
Turn On UPS	**This displays only when the UPS is off. It turns on the output power of the UPS and (for Smart Outlet) of all its outlets immediately.**

User Settings

Path: UPS > User Settings

The default user name is apc and it is a non-changeable setting. The maximum length is 32 characters for a password. Blank passwords (passwords with no characters) are not allowed.

Use **Session Timeout** to configure the time (3 minutes by default) that this user interface waits before logging off this user. If you change this value, you must log off for the change to take effect.



bu284a

Color-code event log text. Select the Event Log Color Coding check box to enable color coding of alarm text recorded in the event log. (System-even entries and configuration-change entries do not change color.)

Text Color	Alarm Severity
Red	**Critical**: A critical alarm exists, which requires immediate action.
Orange	**Warning**: An alarm condition requires attention and could jeopardize your data or equipment if its cause is not addressed.
Green	**Alarm Cleared**: The conditions that caused the alarm have improved.
Black	**Normal**: No alarms are present. The network management and all connected devices are operating normally.

Export Log Format

Exported log files can be formatted using CSV (comma-separate values), or tabs. Choose here and it will be applied when exporting event or data files.

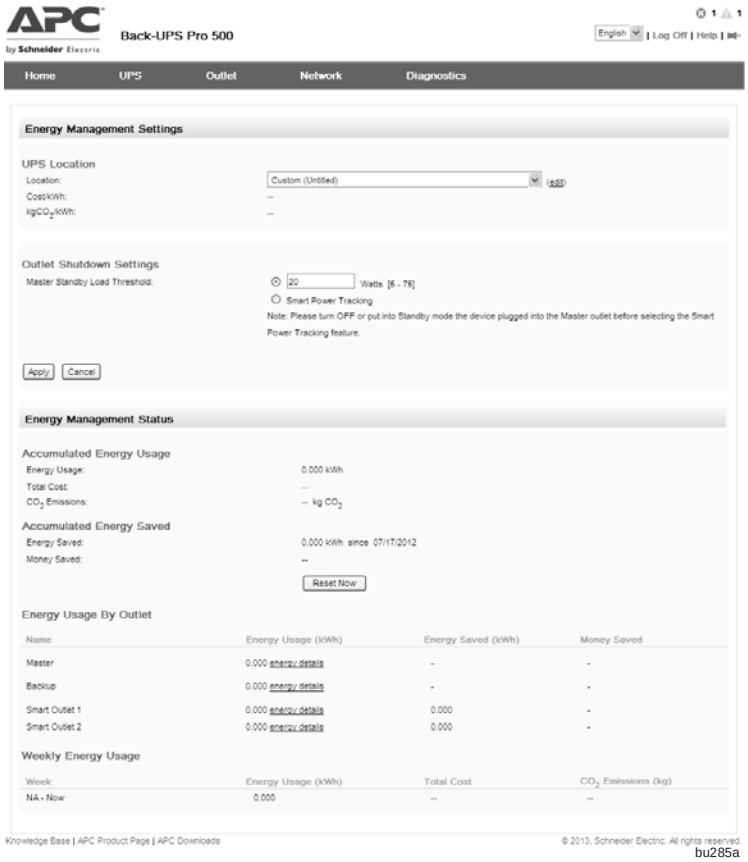
Date Format

Select the numerical format in which to display all dates in this user interface. In the selections, each letter variable (m for month, d for day, and y for year) represent one digit. Single digit days and months are displayed with 0.

You can also specify different languages for e-mail recipients. See "E-mail recipients" on page 47.

Energy Management

Path: UPS > Energy Management



bu285a

Energy Management Settings

UPS Location. You can change the default **UPS Location**, by choosing an option from the drop-down box. Changing the location affects the cost and energy usage displayed.

By clicking on **edit** to the right of the drop-down box, you can manually input the location, energy cost, CO_2, and currency values.

Outlet Shutdown settings. Master Standby Load Threshold. This field sets a value which governs when the Smart Outlets are automatically switched off and on. (You also have to enable **Master Control Mode**).

This will save you power and money. See table.

When the real power of the Master outlet...		the Smart Outlets...
<	**Master Standby Load Threshold**	**...are switched OFF**
>	**Master Standby Load Threshold plus 5 Watts**	**...are switched ON**

Smart Power Tracking. Using this is an alternative to inputting a value in **Master Standby Load Threshold** (above). Select **Smart Power Tracking** to *automatically* establish and implement the value in the Master Standby Load Threshold. It does this by tracking the real power of the Master outlet.

Energy Management status

Accumulated Energy Usage. This enables you to monitor the energy consumption of equipment attached to your UPS. In addition it gives you energy-related data like your carbon dioxide emissions and your energy costs.

This field shows the total consumption in kilowatts per hour (kWh) of devices attached to all your outlets. You can also click on **energy details** to display **Energy Usage for Client Outlet** for information on individual outlets. The fields there are described on the following table.

Field	Description
Energy Usage	**Your estimated electricity consumed since you installed the UPS in kilowatts per hour (kWh). For example, a UPS powering a 350 W light bulb for 1000 hours consumes 350 kWh of energy**
Total Cost	**Your estimated electricity cost of energy used, in your local currency. For example, a light bulb consuming 350 kWh of energy over 1000 hours with a price of $0.10 per kWh costs $35 over that period of time.**
CO_2 Emissions	**Your estimated total emission of carbon dioxide (CO_2) in kilograms or pounds used thus far.**

Total cost and CO_2 emissions vary greatly by energy source and distribution network. Obtain a rough estimate by clicking **Select** to the right of **Location** to choose your country. To input your own values, click on the **(edit)** link.

See also "Energy Management" on page 5.

Accumulated Energy Saved

Shows the Energy Saved and Money Saved of whole system when the Energy Management Mode is enabled.

Field	Description
Energy Saved	**The energy saved (kWh) when the Energy Management Mode is enabled.**
Money Saved	**The money saved when the Energy Management Mode is enabled.**

Energy Usage By Outlet

Shows the aggregate energy usage per outlet, including overall energy usage, the amount of energy saved and the amount of money saved.

Weekly Energy Usage

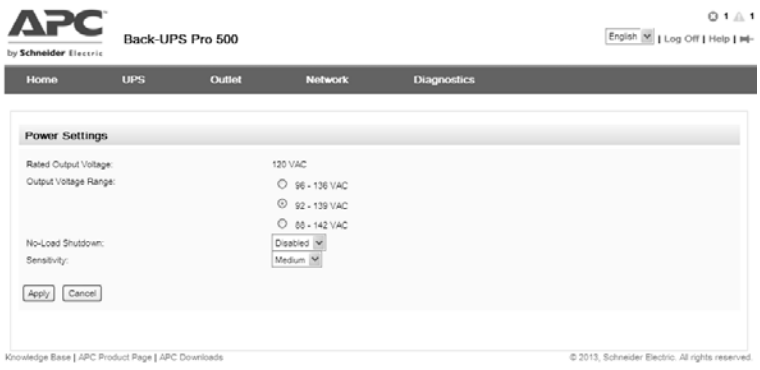
Shows the aggregate energy usage by week, including the overall energy usage, total cost of energy used and the equivalent C02 Emissions.

Advanced Settings

Path: UPS > Advanced Settings

Power Settings

Path: UPS > Advanced Settings > Power Settings



bu286a

You can configure the following types of model-specific items:

• Rated Output Voltage: The desired output voltage of the UPS

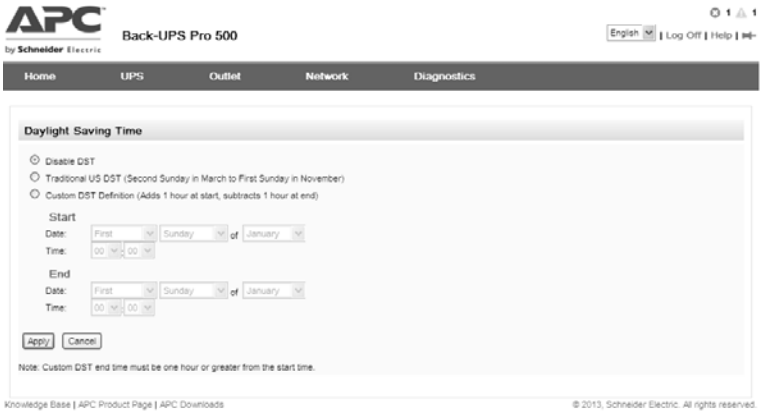
• Upper and Lower **Voltage** settings determine the ranges at which the UPS automatic regulates battery operation.

- No-Load Shutdown: The UPS will shutdown to conserve energy if while operating on battery power the UPS detects that connected equipment is using less than 15W of energy for more than 5 minutes.
- Electrical noise is unwanted electromagnetic energy which lowers the quality of signals and data. When there is too much noise, your UPS intervenes by supplying battery power. You can specify the response to noise through **Sensitivity**. Use the **High, Medium,** and **Low** options in the Sensitivity drop-down box when there is a lot of noise.

Daylight Saving Time

Path: UPS > Advanced Settings > Daylight Saving Time

Enable traditional United States Daylight Saving Time (DST), or enable and configure a customized daylight saving time to match how Daylight Saving Time is implemented in your local area. DST is disabled by default.



bu287a

When customizing Daylight Saving Time (DST):

- If the local DST always starts or ends on the fourth occurrence of a specific weekday of a month (e.g, the fourth Sunday), choose **Fourth/Last**. If a fifth Sunday occurs in that month in a subsequent year, the time setting still changes on the fourth Sunday.
- If the local DST always starts or ends on the last occurrence of a specific weekday of a month, whether it is the fourth or the fifth occurrence, choose **Fifth/Last**.

Firmware Update

To use this option the firmware update file must have been previously sent using FTP and stored in the `/upsfw/` directory.

bu351a

This update refers to the firmware on the UPS. Don't confuse this with a UPS card firmware upgrade!

Steps to update the UPS firmware:

1. If a UPS firmware update file is not already loaded onto the UPS, then FTP into the UPS and put the update file into the upsfw directory. The UPS may abort the FTP firmware transfer if it detects that the update file is corrupted.
   Here's an example of loading an update file using the DOS FTP command:

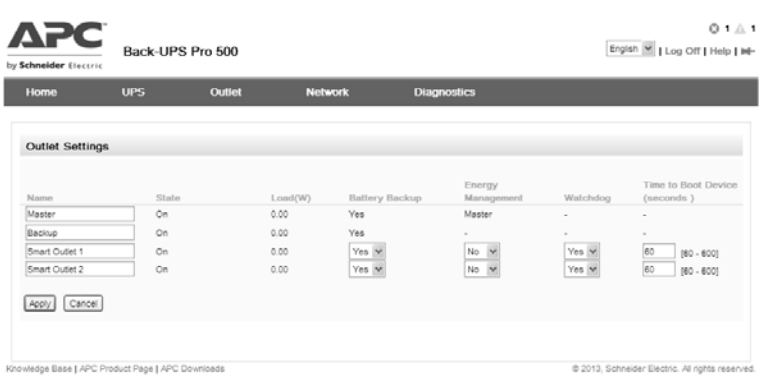
```
$ ftp <UPS Network Address Here>
Connected to <UPS Network Address>.
220 AP9631 Network Management Card AOS vX.Y.Z FTP server ready.
User (<UPS Network Address>:(none)): apc
331 User name okay, need password.
Password:
230 User logged in, proceed.
ftp> cd upsfw
250 CWD requested file action okay, completed.
ftp> put "<Path to UPS Firmware File>"
200 PORT Command okay.
150 File status okay; about to open data connection.
226 Closing data connection.
ftp: 121984 bytes sent in 1.39Seconds 87.70Kbytes/sec.
ftp> quit
221 Goodbye.
```

2. Check the firmware update page to see that the update file is loaded onto the UPS. Below the file path, you may see:
   - **Incompatible with this UPS**
     Indicates that update file will not work with this UPS because it is designed for a different one.
   - **Unknown format**
     Indicates that the update file does not appear to be a valid UPS firmware update file. The file could indeed be invalid, or in a format that the UPS does not yet recognize.
3. If the update file exists on the USP, then the UPS will display the update version. This will be listed as unknown if the UPS does not recognize the format of the update file. Otherwise this lists the version each UPS component assumes after the update. Greyed out components are not part of this update file.
4. Press the Update UPS button to start the update process.
   When the update finishes, check the status under Last Update Result or in the event log.

Outlet Menu

Outlet Settings

Path: Path: Outlet > Settings



bu288a

This page, you can set the name, Battery Backup mode, Energy Management mode, Watchdog and Time to Boot Device for each outlet.

Overview of Outlets

Master and Backup outlet. The Back-UPS provides AC power to the Master and Backup Outlet.

• If the UPS is turned off, the Smart Outlets cannot be turned on.

• When you turn off the UPS, it initially turns off the Smart Outlets before turning off the Master and Backup Outlet.

- To turn on a Smart Outlet, the UPS must turn on the Master and Backup Outlet first.

Smart Outlets 1 and 2. Each Smart outlet can perform actions independently. You can turn on, off or restart these outlets by manual.

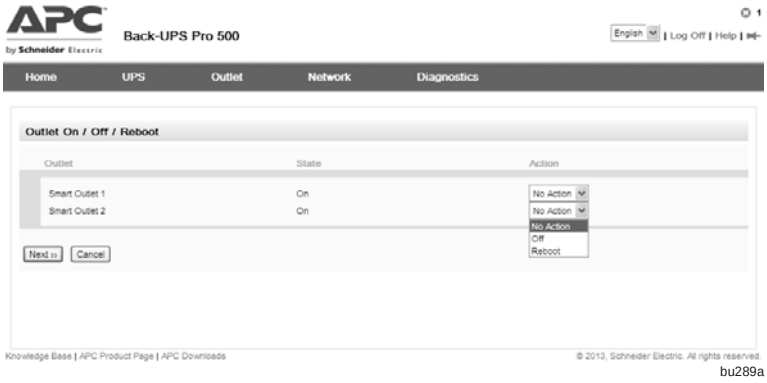
When you turn on the UPS output, any outlet that is off turns on by previous setting before UPS is off.

Setting or Field	Description
Name	**Enter descriptive name for the outlet (for example, a description of the devices connected to this outlet). The outlets by placement are: Master, Backup, Smart Outlet 1 and Smart Outlet 2.**
State	**Displays the state of the outlet (on or off) and if the outlet is changing state, indicates whether the UPS is waiting for AC utility power or displays a countdown of configured delays**
Load	**The real power (Watts) that the outlet is supplying to its load**
Battery Backup	**Displays whether battery backup functionality is enabled for the outlet. Only the Smart Outlets can be configured without battery backup.**
Energy Management	**Indicates if the Energy Management function is enabled or disabled. See "Energy Management" on page 5.**
Watchdog	**Indicates that Watchdog function is enabled or disabled. See "Watchdog Introduction" on page 5.**
Time to Boot Device	**Indicates the amount of time required for the device that is plugged into the associated outlet takes to boot into a ready state**

Outlet On / Off / Reboot

Path: Outlet > On / Off / Reboot

Turn on, turn off, or restart outlets with this option.



bu289a

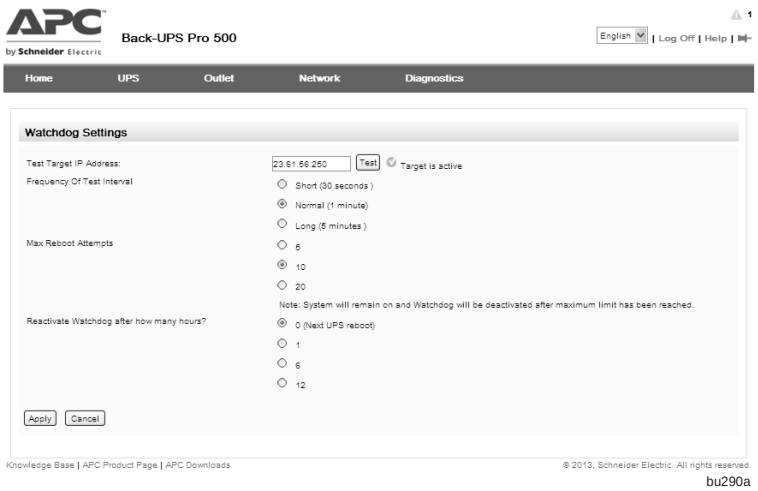
You can select any of the following actions (or no action) for each outlet. These are one-time actions.

- When the state of the outlet is **off**:
  - **On**
- When the state of the outlet is **on**:
  - **Off**
  - **Reboot:** Turn off the outlet immediately then turn it on after a few seconds

After you select an action, click **Next>>** to view a detailed description of the action, including the duration of any delays. Click **Apply** to commence the action.

Watchdog Settings

Path: Outlet > Watchdog Settings



bu290a

Under the Web page “Outlet > Settings”, when this Watchdog is set to ‘Yes’, the Smart Outlet will operate in Watchdog mode.

In Watchdog mode, the Smart Outlet is configured to periodically confirm that a Test Target IP Address (such as a server, computer, modem, router, etc.) is working by sending ping requests to the address.

The UPS expects a response after each ping. If it fails to get the response for the duration of a Test Interval (in “Outlet > Watchdog Settings” page), it is assumed that the device is not functioning properly. The UPS will attempt to restore the device to normal operation by power cycling the Watchdog enabled outlet.

The user has to provide the Time to Boot Device value to boot the device properly after the device is powered on. After the Time to Boot Device has lapsed, the UPS will start to ping the device.

If the UPS still fails to ping the target IP Address and reboots to the point that it reaches the Max Reboot Attempts, the Watchdog mode will then be disabled. The UPS will re-start pinging the target IP Address depending on the Reactivate Watchdog setting.

In Watchdog mode, users still have the ability to manually reboot the device from a remote location over the network.

How the Watchdog timing works

To ensure optimal conditions for user-free management the Watchdog feature uses a delay between the time the modem is booted (Smart Outlet 1) and when the wireless router (Smart Outlet 2) is turned on. The Time to Boot Device is the approximate time it takes to boot most devices. The Time to Boot Device also lets the UPS know when the second devices is booted so that it can start to ping the target IP Address.

Watchdog Installation

Scenario 1: Watchdog configuration connected to a router. Under the Web Page “Outlet > Settings”, the Watchdog of Smart Outlet 1 must be set to “Yes”.

Scenario 2: Watchdog configuration with Modem and Router connections. When the modem and router are both connected to the network, plug the modem input to Smart Outlet 1 and the router into Smart Outlet 2. Under the Web page “Outlet > Settings”, the Watchdog of both Smart Outlet 1 and 2 must be set to “Yes”.

Note: When both Watchdog 1&2 are enabled and any one Smart Outlet is turned off manually, the Watchdog feature will be disabled until both Smart Outlets are turned on manually. See "Outlet On / Off / Reboot" on page 38.

Configuring the Watchdog

Enable Watchdog: (see Outlet > Settings). The user can enable the Watchdog feature on one Smart Outlet by selecting ‘Yes’. If the outlet is ON, and the user enables the Watchdog feature on this Smart Outlet, the USP will start to ping the Test Target IP Address. If the outlet is OFF, the Watchdog feature will be disabled.

Note: Enabling the Watchdog feature on Smart Outlet 1&2 could cause the outlet 1&2 turned off at the same time and turned on sequentially.

The following parameters (in Outlet > Settings) are available only when Watchdog is set to ‘Yes’.

- **Time to Boot Device:**
  The Time to Boot Device indicates the amount of time required for the device that is plugged into the associated outlet takes to boot into a ready state. In the Watchdog mode, when the Smart Outlet 1&2 are both enabled, the both Smart Outlets will reboot at the same time immediately, but the Smart Outlet 1 will turn on immediately and the Smart Outlet 2 will turn on with a delay after the device associated on the Smart Outlet 1 has booted into a ready state.

The following parameters (in Outlet > Watchdog Settings) are available only when Watchdog is set to ‘Yes’.

Setting or Field	Description
Test Target IP Address	**This is the IP address that UPS will ping. This is typically the IP address of the device that will be re-booted upon failure (modem or wireless router). It could, however, be an address on the internet when the UPS is used to reboot a communication device that does not have an IP address such as a CSU/DSU, satellite modem, router, etc.**
Frequency of Test Intervals	**When ping requests fail (no response from device), it may be desirable to begin pinging at a time interval (5 seconds). When ping requests successful, it may be desirable to begin pinging at a time interval (10 seconds). When it pings fail continuously reaching the Test Interval, the UPS will reboot the Smart Outlet.**
Max Reboot Attempts	**After the device has been rebooted reaching this number of times without any successful pings, it is assumed that there are problems that are not resolved with a reboot and the UPS will no longer attempt to reboot the device. The Watchdog function will be temporarily deactivated. It will be reactivated again based on the next user setting. If a reboot occurs before the reactivate interval is complete the Watchdog function will be reactivated as well.**
Reactivate Watchdog after how many hours?	**With these options, user can configure when the Watchdog will be reactivated from the sleeping stage. When the 0 (Next UPS reboot) is selected, the Watchdog will only reactivate after next UPS reboot, else the Watchdog will reactivate after the configured hours is reached.**

Network Menu

The Network page gives you your IP, domain name, and ethernet port settings. See the online help for details on individual fields.

Settings

Path: Network > Settings

bu291a

Current Network Settings

The Current Network Settings display the current IPv4 address, subnet mask, default gateway, MAC address, and boot mode of the UPS.

Current DNS Settings

The Current DNS Settings display the current IPv4 address of active primary and secondary DNS server, active host name and domain name.

The TCP/IP option displays the current IPv4 address, subnet mask, default gateway, MAC address, and boot mode of the UPS.

General Networking Settings

By default, the Back-UPS network management module is always available as long as the UPS is on. When the UPS is off, the network management interface is also not available unless the battery is charging. The “Network Always On” option enables the network management interface to be accessible in all situations, whether or not the UPS is on and regardless of whether AC power is available.

Custom DNS Settings

Use the options under **DNS** to configure and test the Domain Name System (DNS):

- Specify the **Primary DNS Server** and/ or the **Secondary DNS Server** to specify the IPv4 or IPv6 addresses of the primary and optional secondary DNS server. For the UPS to send e-mail, you must at least define the IP address of the primary DNS server.
  - The UPS waits up to 15 seconds for a response from the primary DNS server or the secondary DNS server. If the UPS does not receive a response within that time, e-mail cannot be sent. Therefore, use DNS servers on the same segment as the UPS or on a nearby segment (but not across a wide-area network [WAN])
  - After you define the IP addresses of the DNS servers, verify that DNS is working correctly by testing it, see "DNS Test page" on page 46.
- **Host Name**: After you configure a host name here and a domain name in the **Domain Name** field, users can enter a host name in any field in the UPS interface (except e-mail addresses) that accepts a domain name.

- **Domain Name (IPv4)**: You need to configure the domain name here only. In all other fields in the UPS interface (except e-mail addresses) that accept domain names, the UPS adds this domain name when only a host name is entered.
  - To override all instances of the expansion of a specified host name by the addition of the domain name, set the domain name field to its default, `somedomain.com`, or to `0.0.0.0`.
  - To override the expansion of a specific host name entry, include a trailing period. The UPS recognizes a host name with a trailing period (such as *`myServer.`*) as if it were a fully-qualified domain name and does not append the domain name.
- **Domain Name (IPv6)**: Specify the IPv6 domain name here.

Custom Network Settings

- **DHCP and BOOTP mode:** The DHCP, default option of Custom Network Settings, and the BOOTP, assumes that a properly configured BOOTP or DHCP server is available to provide TCP/IP settings to the UPS. The UPS attempts to discover a properly configured DHCP or BOOTP server. It repeats this pattern until it discovers a DHCP or BOOTP server.
- **Manual mode:** If no BOOTP and DHTP are available, you must select the Manual mode.

You must configure the following TCP/IP settings before the UPS can operate on a network.

Note: If a default gateway is unavailable, use the IP address of a computer that is located on the same subnet as the UPS and that is usually running. The UPS uses the default gateway to test the network when traffic is very light.

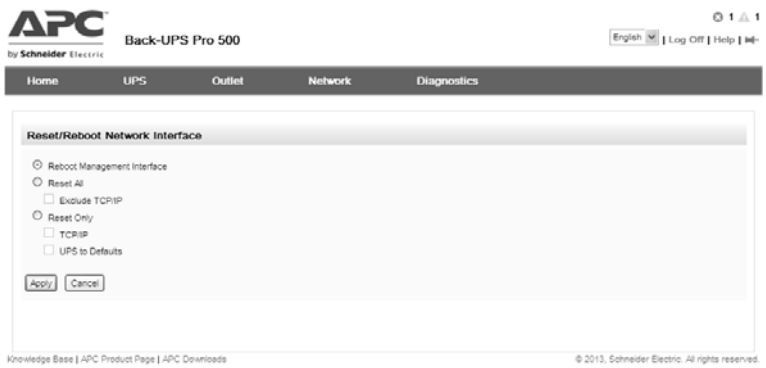
Caution: Do not use the loopback address (127.0.0.1) as the default gateway. Doing so disables the card. You must then press the Reset button to reset the TCP/IP settings to their defaults.

Reset/Reboot

Reset/Reboot Network Interface page

Path: Network > Reset/Reboot

Use these options to reset various UPS options and its user interface.



bu292a

Action	Definition
Reboot Management Interface	Restarts this user interface.
Reset All[1]	Clear the **Exclude TCP/IP** check box to reset ALL configuration values. Select the **Exclude TCP/IP** check box to reset all values except TCP/IP.
[1]Resetting may take up to a minute. The UPS name will not be reset.	

Action	Definition
Reset Only[1]	**TCP/IP settings**: Set TCP/IP Configuration to **DHCP**, its default setting, requiring that the UPS receive its TCP/IP settings from a DHCP or BOOTP server. See "Custom Network Settings" on page 41.
	UPS to Defaults: Reset only UPS settings, not network settings, to their defaults.
[1]Resetting may take up to a minute. The UPS name will not be reset.	

Advanced Settings

Session Management page

Path: Network > Advanced Settings > Session Management

bu293a

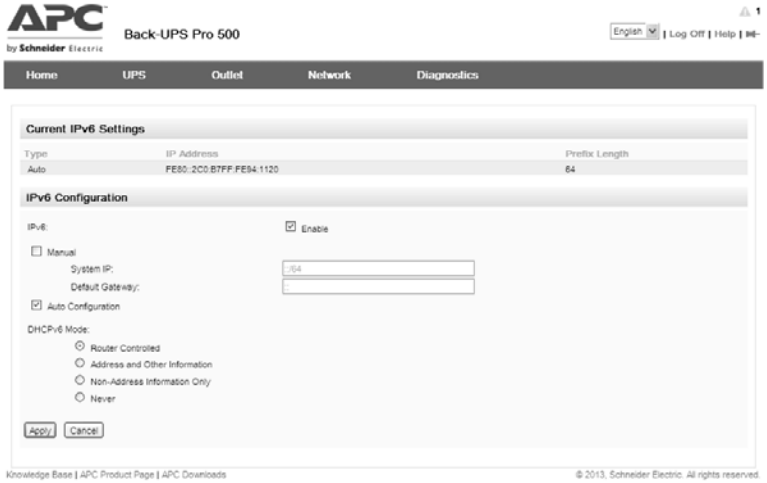
The page gives details about users who log on to this user interface. The details include the logon name in User, the IP address used, and what means of authentication were used to validate the user.

The **Terminate Session** button enables you to log off a user.

Current IPv6 Settings Page

Path: Network > Advanced Settings > IPv6

See the user interface online help for details on the options: Manual, Auto Configuration, DHCPv6 Mode.



bu294a

Diagnostics Menu

Event Log Filter

Path: Diagnostics > Event Log > Filter

bu295a

Event log .

By default, the log displays all events recorded during the last two days, starting with the latest events.

To display the event log. By default, the event log displays the most recent events first. To see the events listed together on a Web page, click the **Launch Log in New Window** button.

To open the log in a text file or to save the log to disk, click on the floppy disk icon, , in the same line as the **Event Log** heading.

To filter the log:

Filtering the log by date or time: Use the **Last** or **From** radio buttons. (The filter configuration is saved until the UPS restarts).

Filtering the log by event: Click **Filter Log**. Clear a check box to remove it from view. Text at the upper right corner of the event log page indicates that a filter is active after you click **Apply**. The filter is active until you clear it or until the UPS restarts. To remove an active filter, click **Filter Log**, then **Clear Filter (Show All)**. As Administrator, click **Save As Default** to save this filter as the new default log view for all users.

See these important points on filtering:

- Events are processed through the filter using OR logic.
- Events that you cleared in the **Filter By Severity** list never display in the filtered event log, even if the selected in the **Filter by Category** list.
- Similarly, events that you clear in the **Filter by Category** list never display in the filtered event log.

To delete the log: To delete all events, click **Clear Log**. Deleted events cannot be retrieved.

To configure reverse lookup: Path: Diagnostics > Events Logs > Reverse Lookup

With reverse lookup enabled, when a network-related event occurs, both the IP address *and* the domain name for the networked device with the event are logged in the event log. If no domain name entry exists for the device, only its IP address is logged with the event.

Since domain names generally change less frequently than IP addresses, enabling reverse lookup can improve the ability to identify addresses of networked devices that are causing events.

Back-UPS Pro 500
Home
UPS
Outlet
Network
Diagnostics
Reverse Lookup
The event log will identify each event by the domain name as well as the IP address of the device that generated the event when reverse lookup is enabled and a DNS server is available.
Enable reverse lookup
Apply
Cancel
bu356a

Reverse lookup is disabled by default. Enable it *unless* you have no DNS server configured or have poor network performance because of heavy network traffic.

To resize the event log.

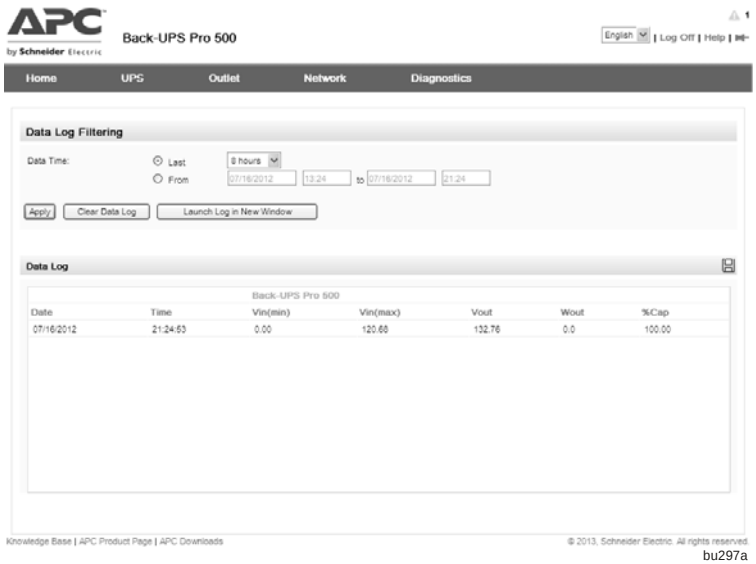
Path: Diagnostics > Events Logs > Size

When you resize the event log in order to specify a maximum size, all existing log entries are deleted. When the log subsequently reaches the maximum size, the older entries are deleted.

bu296a

Data Log Filter

Path: Diagnostics > Data Log > Filter



bu297a

View a log of measurements about the UPS, maximum output voltage, minimal output voltage, output voltage, load, battery capacity.

The steps to display and resize the data log are the same as for the event log, except that you use menu options under **Data** instead of **Events**.

To filter the data log by date or time, use the **Last** or **From** radio buttons. (The filter configuration is saved until the UPS restarts).To delete all data recorded in the data log, click **Clear Data Log**. Deleted data cannot be retrieved.

To set the data collection interval (Diagnostics > Data Logs > Interval):

Define, in the **Log Interval** setting, how frequently data is sampled and stored in the data log. When you click Apply, the number of possible storage days is recalculated and display at the top of the screen. When the log is full, the oldest entries are deleted. To avoid automatic deletion of older data, see “To configure data log rotation (Logs > Data > Rotation)”.

Back-UPS Pro 500
English | Log Off | Help |
Home
UPS
Outlet
Network
Diagnostics
Data Log Interval
A maximum of 2.77 days of data will be available based upon the current Log Interval of 0 hours, 10 minutes, 0 seconds. After the data log reaches the maximum size, the oldest entries will be truncated from the log as newer entries are logged.
Log Interval:
0
hours,
10
minutes,
0
seconds [range: 5 seconds - 18.2 hours]
Apply
Cancel
Knowledge Base | APC Product Page | APC Downloads
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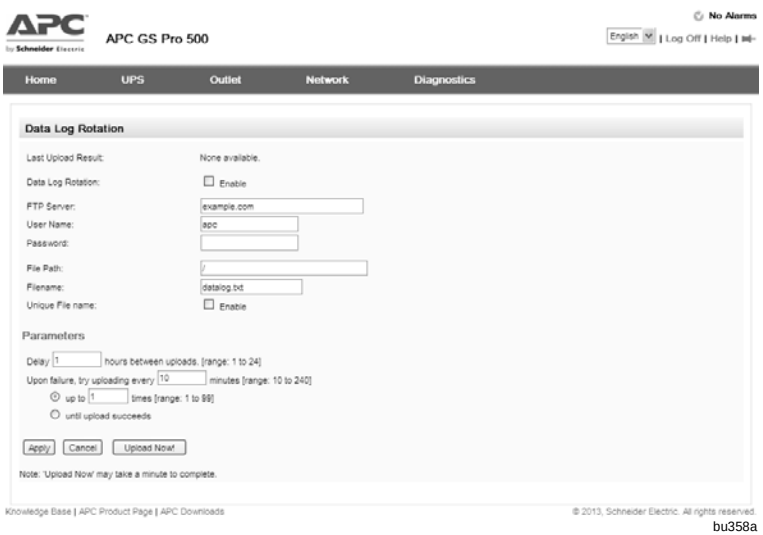
bu357a

To configure data log rotation (Diagnostics > Data Logs > Rotation):

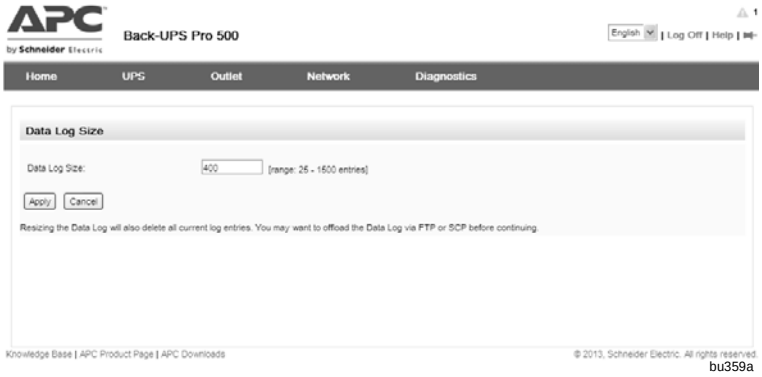


bu358a

Rotation causes the contents of the data log to be appended to the file you specify by name and location. This means you can store the data before it is deleted.

To configure data log size (Diagnostics > Data Logs > Size):

Specify the maximum size (number of entries) of the data log. When you resize the data log, all existing log entries are deleted. To avoid losing log data, use FTP or SCP to retrieve the log before you resize the log. After the data log reaches the maximum size, the oldest entries are deleted from the log as new entries are logged.


Back-UPS Pro 500
English | Log Off | Help
Home
UPS
Outlet
Network
Diagnostics
Data Log Size
Data Log Size:
400
[range: 25 - 1500 entries]
Apply
Cancel
Resizing the Data Log will also delete all current log entries. You may want to offload the Data Log via FTP or SCP before continuing.
Knowledge Base | APC Product Page | APC Downloads
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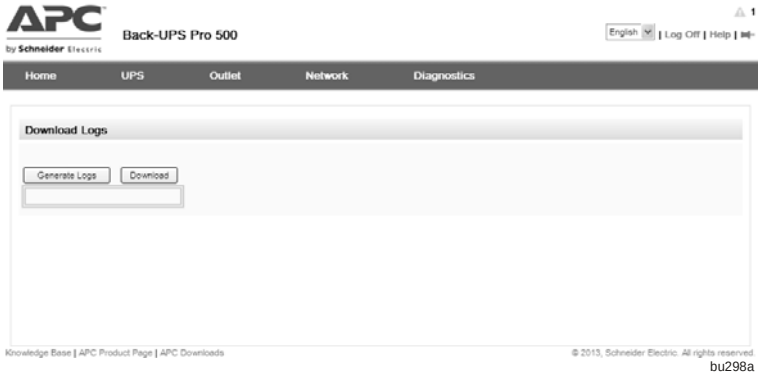
bu359a

Download Logs

Path: Diagnostics > Download Logs

Download Logs. This feature captures an assortment of debug data into a single file and then allows the user to download that file to a local computer.

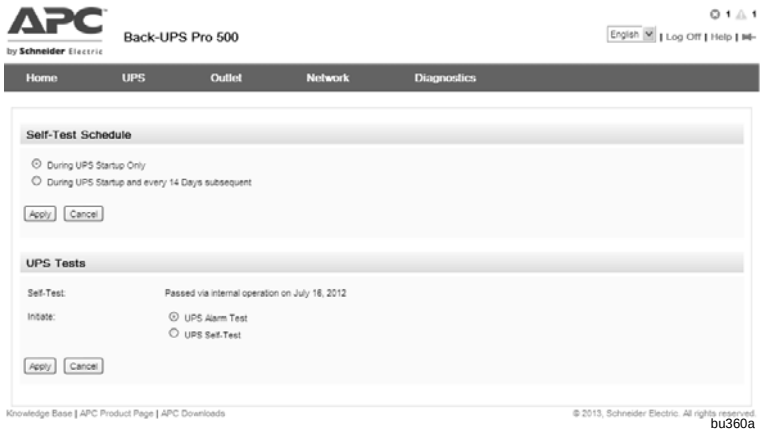


bu298a

Test

Self-Test Schedule

Path: Diagnostics > Test > UPS

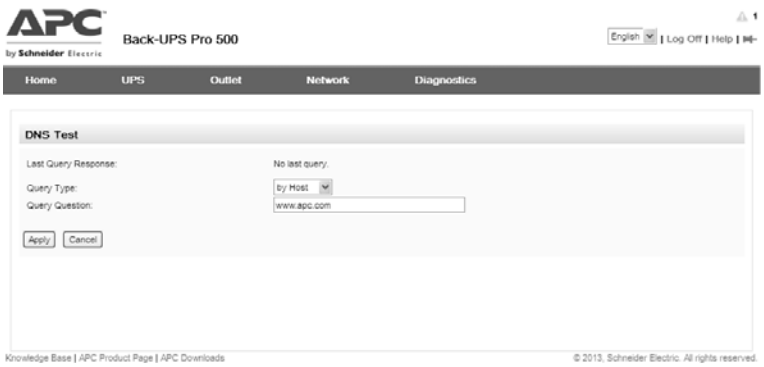


bu360a

You can schedule to run a self-test for your UPS.

UPS Tests. Select a radio button, and click Apply to perform either of these actions, or to test an alarm.

DNS Test page



bu299a

Path: Diagnostics > Test > DNS

Select **test** to send a DNS query that tests the setup of your DNS servers:

• As **Query Type**, select the method to use for the DNS query, see table below

• As **Query Question**, identify the value to be used for the selected query type:

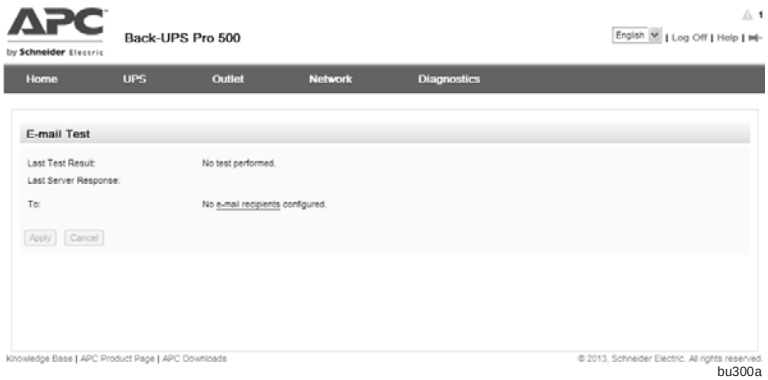
Query Type Selected	Query Question to Use
by Host	The host name
by FQDN	The fully-qualified domain name, ***my_server.my_domain***.
by IP	The IP address of the server
by MX	The Mail Exchange address

View the result of the test DNS request in the **Last Query Response** field.

E-mail Test page

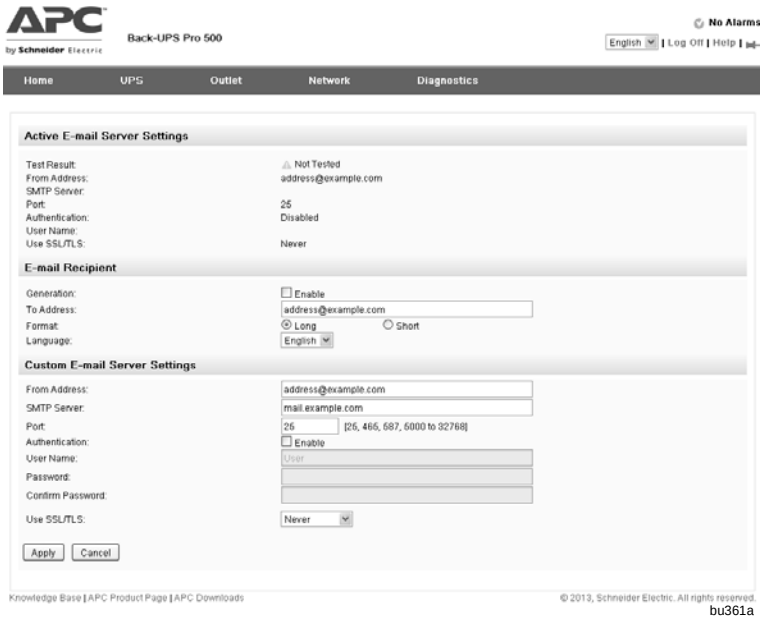
Path: Diagnostics > Test > E-mail

Send a test message to a configured recipient.



bu300a

Notification



bu361a

Active E-mail Server Settings

Overview of setup Use the Simple Mail Transfer Protocol (SMTP) to send e-mail to up to four recipients when an event occurs.

To use the e-mail feature, you must define the following settings:

- The IP addresses of the primary and, optionally, the secondary Domain Name System (DNS) servers.
- The IP address or DNS name for **SMTP Server** and **From Address**. (See Custom E-mail server settings on page 48.)

You can use the **To Address** setting of the **recipients** option to send e-mail to a text-based pager.

E-mail recipients.

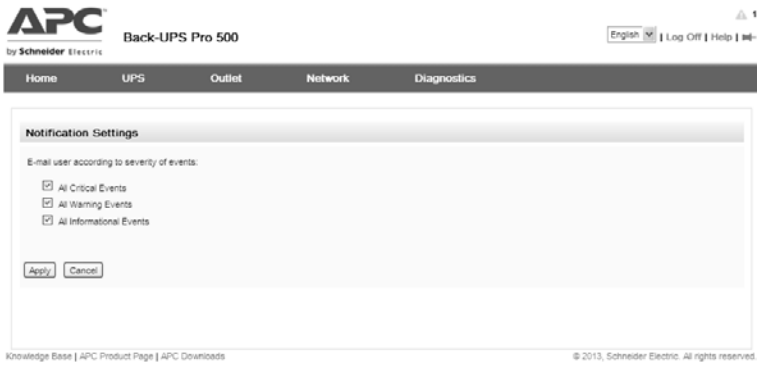
Setting	Description
E-mail Generation	**Enables (default) or disables sending e-mail to the recipient.**
To Address	**The email address of the recipient.**
Format	**The long format contains Name, Location, Contact, IP address, serial number of the device, date and time, event code, and event description. The short format provides only the event description.**
Language	**Chose a language from the drop-down list and any mails will be sent in that language. It is possible to use different languages for different users.**

Custom E-mail server settings.

Path: Diagnostics > Notification > E-mail > Server

Setting	Description
From Address	**The contents of the From field in e-mail messages sent by the UPS:** • In the format *user@* [*IP_address*] (if an IP address is specified as **Local SMTP Server**) • In the format *user@domain* (if DNS is configured and the DNS name is specified as **Local SMTP Server**) in the e-mail messages. **Note: The local SMTP server may require that you use a valid user account on the server for this setting. See the server's documentation.**
SMTP Server	**The IPv4/ IPv6 address or DNS name of the local SMTP server.**
Port	**The SMTP port number, with a default of 25.**
User Name **Password** **Confirm Password**	**If your mail server requires authentication, type your user name and password here.**
Use SSL/TLS	**The SMTP server only accepts connections that begin encrypted. No STARTTLS message is sent to the server. If you are using a public email server it is likely that encryption is required. Check with your service provider to see what they support. If service provider explicitly supports SSL/TLS then it is best to start by choosing the "implicitly" option. If that does not work then choose the "If Supported". Here are some common settings for public email providers as of when this product was released.** Provider / SMTP Server / Port / Use SSL/TLS Google / smtp.gmail.com / 465 / Implicitly Yahoo! / smtp.mail.yahoo.com / 465 / Implicitly Microsoft / smtp.live.com / 587 / If Supported bu363a **The settings above are provided for convenience only. Please check with your service provider for the most current SMTP server name and port.**

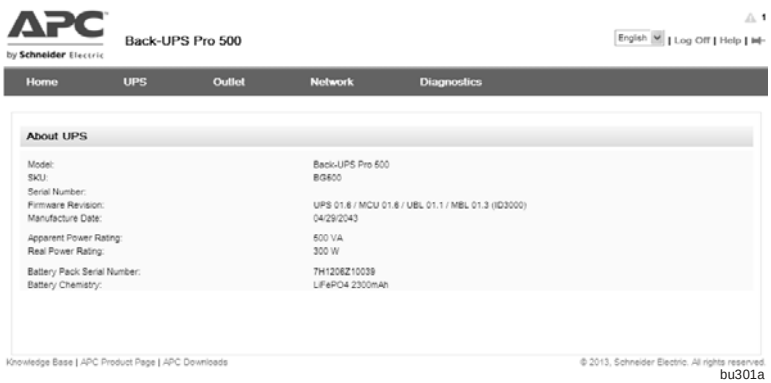
Notification Settings pages.



bu362a

E-mail user according to severity of events	**Enable or disable the e-mail notification for the selected events that are grouped by severity.**

System Information



bu301a

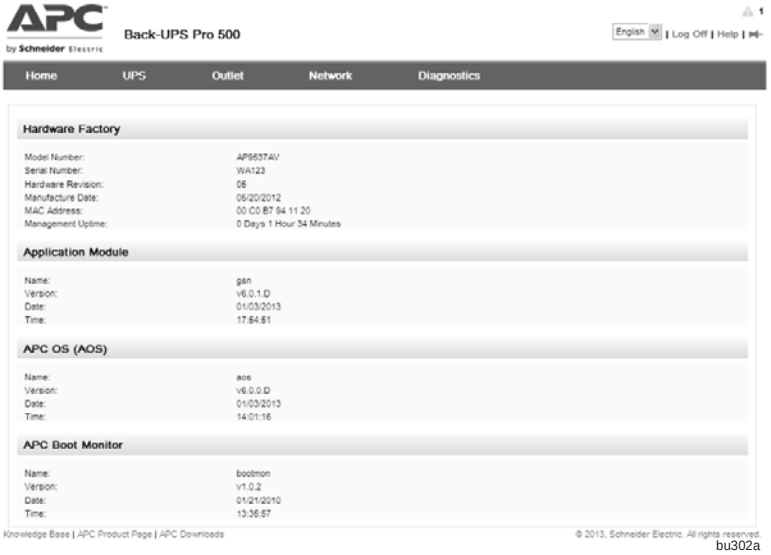
Path: Diagnostics > System information > UPS

This hardware information under the UPS and Network menu options is useful to customer support for troubleshooting problems with the UPS. The serial number and MAC address are also available on the UPS itself.

Path: Diagnostics > System information > Network

Firmware information for the Application Module, American Power Conversion OS (AOS), and Boot Monitor indicates the name, the firmware version, and the date and time each firmware module was created. This information is also useful in troubleshooting and enables you to determine if updated firmware is available at the **www.apc.com** website.

Management Uptime is the length of time the interface has been running continuously.



bu302a

Troubleshooting

Problem and Possible Cause	Solution
The Back-UPS will not turn on	
The Back-UPS has not been turned on.	Press the POWER ON button.
The Back-UPS is not connected to AC power, there is no AC power available at the wall outlet, or the AC power is experiencing a brownout or over voltage condition.	Make sure the power cord is securely connected to the wall outlet, and that there is AC power available at the wall outlet.Where applicable, check that the wall outlet is switched on.
The battery is not connected.	Connect the battery. Refer to "Connect the Battery" section of the Installation Manual. In the event the Back-UPS receives no AC power and the battery is connected, a cold-start can be initiated. Press and hold the Power On button until the Back-UPS emits two beeps.
The Back-UPS is on, the Power On/Replace Battery LED flashes and the unit emits a constant tone	
The battery is disconnected.	Refer to the "Connect the Battery" section of the Installation Manual.
Connected equipment loses power	
A Back-UPS overload condition has occurred.	Remove all nonessential equipment connected to the outlets. One at a time reconnect equipment to the Back-UPS.
The Back-UPS battery is completely discharged.	Connect the Back-UPS to AC power and allow the battery to recharge for 12 hours.
Connected equipment does not accept the step-approximated sine waveform from the Back-UPS.	The output waveform is intended for computers and peripheral devices. It is not intended for use with motor driven equipment.
The Back-UPS may require service.	Contact SEIT Technical Support for more in depth troubleshooting.
The Power On LED is illuminated and the Back-UPS beeps 4 times every 30 seconds	
The Back-UPS is operating on battery power.	The Back-UPS is operating normally on battery power. At this point the user should save all open files, and shutdown the computer. When AC power is restored the battery will recharge.
The Power On LED flashes once every second while the Back-UPS beeps once every second	
The Back-UPS battery has approximately two minutes of remaining runtime.	The Back-UPS battery is near a total discharge state. At this point the user should save all open files, and shutdown the computer. When AC power is restored the battery will recharge.
The Back-UPS has an inadequate battery runtime	
The battery is not fully charged. The battery is near the end of useful life and should be replaced.	Leave the Back-UPS connected to AC power for 16 hours while the battery charges to full capacity. As a battery ages, the runtime capability decreases. Contact APC at the Web site www.apc.com, to order replacement batteries.
The Building Wiring Fault LED illuminates	
The building wiring presents a shock hazard that must be corrected by a qualified electrical.	Do not operate the Back-UPS. Call a qualified electrician to correct the building wiring fault.
Cannot find the UPS IP when searching via the Device IP Wizard	Make sure the UPS and your PC is connected to the same network (or the same Router which provides a DHCP server). Reset the system to default by pressing the RESET button for 20 seconds. Re-launch the Device IP Wizard and search for the IP again. Note: If the UPS connected to a modem or router without a DHCP server, it should be configured with a static IP Address.
Lost network IP, User name, or password	
A set of network IP, User name and password is required to access the Web page of Back-UPS on the Web browser	Press the Network RESET button for 20 seconds to reset the network IP to DHCP mode, both user name and password to "apc", clear and reset all the web configuration to default.

Problem and Possible Cause	Solution
The battery does not charge but the unit is on and there is power to the outlets	**The battery will not charge if the temperature is over 50 degrees Celcius.**
UPS will not turn on	**User tries to cold boot the UPS when no AC power is present.** **The UPS will not cold boot when battery capacity is less than 30%. When AC power is restored the UPS can be turned on as normal.**

Service and Transport

If the unit requires service, do not return it to the dealer. Follow these steps:

1. Review the *Troubleshooting* section of the manual to eliminate common problems.
2. If the problem persists, contact APC by Schneider Electric Customer Support through the Web site, www.apc.com.
   a. Note the model number and serial number and the date of purchase. The model name is BG500, and the serial number is located on the pull tab of the battery compartment.
   b. Call APC Customer Support and a technician will attempt to solve the problem over the phone. If this is not possible, the technician will issue a Returned Material Authorization Number (RMA#).
   c. If the unit is under warranty, the repairs are free.
   d. Service procedures and returns may vary internationally. Refer to the APC by Schneider Electric Web site for country specific instructions.
3. .Pack the unit properly to avoid damage in transit. Never use foam beads for packaging. Damage sustained in transit is not covered under warranty. **Always DISCONNECT THE UPS BATTERY before shipping. Note: When shipping within the United States, or to the United States always DISCONNECT A UPS BATTERY before shipping in compliance with U.S. Department of Transportation (DOT) and IATA regulations.** The internal batteries may remain in the UPS.
4. Write the RMA# provided by Customer Support on the outside of the package.

Return the unit by insured, pre-paid carrier to the address provided by Customer Support.

Transport the unit

1. Shut down and disconnect all connected equipment.
2. Disconnect the unit from utility power.
3. Disconnect all internal and external batteries (if applicable).
4. Follow the shipping instructions outlined in the *Service* section of this manual.

Warranty

The standard warranty is three (3) years from the date of purchase. Schneider Electric (SEIT) standard procedure is to replace the original unit with a factory reconditioned unit. Customers who must have the original unit back due to the assignment of asset tags and set depreciation schedules must declare such a need at first contact with an SEIT Technical Support representative. SEIT will ship the replacement unit once the defective unit has been received by the repair department, or cross-ship upon the receipt of a valid credit card number. The customer pays for shipping the unit to SEIT. SEIT pays ground freight transportation costs to ship the replacement unit to the customer.

APC by Schneider Electric IT Customer Support Worldwide

For country specific customer support, go to the APC by Schneider Electric Web site, www.apc.com.

Select models are ENERGY STAR® qualified.
For more information go to
www.apc.com/site/recycle/index.cfm/energy-efficiency/energy-star/.

This UPS is certified to comply with California Battery Charger System regulations.
For more information go to
www.apc.com/site/recycle/index.cfm/energy-efficiency/cec-battery-charger/.

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